AIR QUALITY PERMIT

Issued to: Holcim (US) Inc.
Trident Facility
4070 Trident Road
Three Forks, MT 59752

Permit: #0982-11
Application Received: 11/03/02
Application Complete: 02/12/03
Preliminary Determination Issued: 03/24/03
Department Decision Issued:
Permit Final:
AFS #031-0005

An air quality permit, with conditions, is hereby granted to Holcim (US) Inc. (Holcim) pursuant to Sections 75-2-204 and 75-2-211 of the Montana Code Annotated (MCA), as amended, and the Administrative Rules of Montana (ARM) 17.8.740, *et seq.*, as amended, for the following:

Section I: Permitted Facilities

A. Plant Location

The Holcim cement manufacturing facility is located near the headwaters of the Missouri River in the Northeast ¼ of Section 9, Southeast ¼ of Section 4, Southwest ¼ of Section 3, and Northwest ¼ of Section 10, Township 2 North, Range 2 East, approximately 5 miles northeast of the town of Three Forks in Gallatin County, Montana.

B. Current Permit Action

On October 3, 2001, Holcim submitted an application for an alteration to Montana Air Quality Permit #0982-10 to the Montana Department of Environmental Quality (Department). After submittal of additional supporting information, the Department deemed the application to be complete on February 12, 2003. The permit application requested that the mid-kiln combustion of scrap/waste tires be added to the list of potential fuels for the facility. The tires would comprise up to 15 percent of the total fuel heat input to the kiln on a British Thermal Unit (Btu) basis. Holcim is currently authorized to burn natural gas, coal, petroleum coke, or any combination of these as a fuel for the kiln. This project would entail some limited modification to the kiln shell and would require additional miscellaneous equipment to handle and store tires at the facility. The current permit action will also change the name on the permit from Holnam, Inc. to Holcim. The Department received the request for the name change on November 14, 2001. According to that letter, the change became effective on December 12, 2001. A complete list of the permitted equipment and additional project details are contained in the permit analysis.

Section II: Conditions and Limitations

A. Emission Control Requirements

Holcim shall install, operate, and maintain the following emission control equipment and practices, and all other emission control equipment and practices, as specified in the application for their Montana Air Quality Permit and all subsequent revisions.

1. Holcim shall operate and maintain baghouse(s) to control emissions from the Finish Mill #2 sources listed below (ARM 17.8.752).

   a. A replacement air slide
   b. The clinker/gypsum feed belt via a booster fan
   c. The Finish Mill #2

d. The bucket elevator
e. The product separator

2. Holcim shall operate and maintain baghouse(s) to control emissions from the following coal and coke handling equipment (ARM 17.8.752).

   a. Screw conveyor from the coal/coke/crusher to the bucket elevator
   b. "Raw" coke storage silo
   c. Coke storage silo
   d. Two diverter valves
   e. Hammer mill
   f. Bucket elevator
   g. Coal storage silo
   h. Belt conveyor with weighing system at the base of the “raw” coke storage silo
   i. Coke grinding mill
   j. “Fine” coke storage silo (220-ton)

3. Holcim shall operate and maintain an electrostatic precipitator (ESP) to control kiln emissions (ARM 17.8.752).

4. Holcim shall operate and maintain a baghouse to control clinker cooler emissions (ARM 17.8.749).

5. Holcim shall operate and maintain baghouse(s) to control emissions from the rock silos (ARM 17.8.749).

6. Holcim shall operate and maintain baghouse(s) to control emissions from crushing and screening (ARM 17.8.749).

7. Holcim shall operate and maintain a baghouse to control emissions at the clinker belt conveyor (ARM 17.8.749).

8. Holcim shall operate and maintain a baghouse to control emissions at the dustbin near the precipitator (ARM 17.8.749).

9. Holcim shall operate and maintain a baghouse to control emissions from the Portland cement silos (ARM 17.8.749).

10. Holcim shall operate and maintain a baghouse to control emissions from the Finish Mill #4 system (ARM 17.8.749).

11. Holcim shall install, operate, and maintain a baghouse to control emissions from the pozzolan material storage silo (ARM 17.8.752).

12. Holcim shall install, use, and maintain enclosures around the pozzolan material system components listed below (ARM 17.8.752).

    a. Rotary feeder
    b. Weighbelt conveyor
    c. Screw line (conveyor)

13. Holcim shall use water spray, as necessary, to maintain compliance with the opacity limitation in Section II.C.14 when handling landfilled cement kiln dust (ARM 17.8.752).

14. Whenever process equipment is operating, Holcim shall use and maintain, as they were intended, conveyor covers, transfer point covers, or structural enclosures surrounding process equipment (ARM 17.8.749).

B. Operational Limitations

1. In the cement kiln, Holcim is immediately authorized to burn up to 100% natural gas, up to 100% coal, up to 45% coke, up to 15% tire derived fuel, or any combination of these fuels within the previously stated limits (ARM 17.8.710). After Holcim conducts a source test required by Section II.D.8 and the Department has in writing approved certification of the continuous emissions monitors required by Section II.D.9, the 45% limit on petroleum coke is withdrawn and Holcim may burn up to 100% petroleum coke or any combination of the above permitted fuels (ARM 17.8.710).

2. Holcim shall comply with the sulfur in fuel rule (ARM 17.8.322).

3. Holcim shall not use, in any rolling 12-month time period, greater than 50,000 tons of pozzolan material in the system (ARM 17.8.752).

4. The amount of post-consumer recycled container glass used by Holcim in the cement kiln shall be limited to 800 tons during any rolling 12-month time period (ARM 17.8.752).

5. Holcim shall not handle, in any rolling 12-month time period, greater than 85,000 tons of landfilled cement kiln dust (ARM 17.8.752).

6. Holcim shall limit kiln production to 425,000 tons of clinker during any rolling 12-month time period (ARM 17.8.749).

7. Holcim shall limit clinker handling to 500,000 tons during any rolling 12-month time period (ARM 17.8.749).

8. Holcim shall only combust passenger and/or light truck tires as the tire-derived supplemental fuel for the kiln (ARM 17.8.749).

9. Holcim shall not combust tires in an amount that exceeds 15% of the total fuel heat input to the kiln (measured on a Btu basis) based on a rolling 24-hour time period (ARM 17.8.749).

10. Holcim shall not insert more than two tires into the kiln per kiln revolution (ARM 17.8.749).

11. Holcim shall not combust more than 1,137,539 tires during any rolling 12-month time period (ARM 17.8.749).

12. Holcim shall use covered storage for the tires (ARM 17.8.749).

13. While tires are being combusted in the kiln, Holcim shall maintain the hourly average burning zone temperature of the kiln above 2,100 °F. The burning zone temperature of 2,100 °F shall be maintained for 30 minutes after the insertion of tires has stopped, unless a power surge or fuel feed malfunction prevents Holcim from maintaining this temperature. The burning zone temperature of the kiln shall be continuously monitored and recorded (ARM 17.8.749 and ARM 17.8.752).

14. In the event of an upset or malfunction of the air pollution control device for the kiln main stack that lasts 15 minutes or more, Holcim shall discontinue the insertion of tires into the kiln until the upset or malfunction condition is corrected and the air pollution control device for the kiln is functioning (ARM 17.8.749).

C. Emission Limitations

1. Holcim shall not cause or authorize to be discharged into the atmosphere from the kiln, any stack emissions that:

   a. Contain particulate matter in excess of 0.77 lb/ton of clinker produced (ARM 17.8.749).

   b. Contain NO_x emissions in excess of 1,568 lb/hr averaged over any rolling 30-day period, calculated from seven a.m. to seven a.m. on a daily basis (ARM 17.8.749).

   c. Contain oxides of nitrogen (NO_x) emissions in excess of 1350 lb/hr (ARM 17.8.749).

   d. Contain sulfur dioxide (SO_2) emissions in excess of 124 lb/hr averaged over any rolling 30-day time period, calculated from seven a.m. to seven a.m. on a daily basis (ARM 17.8.749).

   e. Contain dioxins and furans in excess of 0.20 ng per dscm ($8.7x10^{-11}$ gr per dscf) (toxicity equivalents (TEQ)) corrected to 7% oxygen, or dioxins and furans in excess of 0.40 ng per dscm ($1.7x10^{-10}$ gr per dscf) (TEQ) corrected to 7% oxygen, when the average of the performance test run average temperatures at the inlet to the particulate matter control device is 204°C (400° F) or less (40 CFR 63.1343).

   f. Contain volatile organic compounds (VOC) in excess of 1.30 lb/hr (ARM 17.8.749).

2. Holcim shall limit the hours of operation, the capacity, the emission rate, and/or the fuel consumption of the kiln such that the CO emissions from the kiln do not exceed 310 tons during any rolling 12-month time period. Any calculations used to establish CO emissions shall be approved by the Department and shall be based on the CO emissions measured by the CO continuous emission monitoring system (CEMS) for the kiln, unless otherwise allowed by the Department (ARM 17.8.749).

3. Holcim shall not cause or authorize to be discharged into the atmosphere from the burning of tires in the kiln, emissions that:

   a. Contain cadmium in excess of 5.01E-04 lb/hr (ARM 17.8.749).

   b. Contain chromium (Hex) in excess of 5.11E-05 lb/hr (ARM 17.8.749).

   c. Contain lead in excess of 1.48 E-02 lb/hr (ARM 17.8.749).

   d. Contain arsenic in excess of 7.15 E-05 lb/hr (ARM 17.8.749).

   e. Contain beryllium in excess of 8.18 E-06 lb/hr (ARM 17.8.749).

   f. Contain manganese in excess of 7.89 E-02 lb/hr (ARM 17.8.749).

g. Contain mercury in excess of 1.02 E-02 lb/hr (ARM 17.8.749).

h. Contain polycyclic aromatic hydrocarbons (PAH) in excess of 3.98E-04 lb/hr. Total PAH shall be monitored using the most up-to-date EPA TEQ factors for carcinogenic PAHs (ARM 17.8.749).

4. Holcim shall not cause or authorize to be discharged into the atmosphere any visible fugitive emissions that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.308).

5. Holcim shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308[2]).

6. Holcim shall treat all unpaved portions of the haul roads, access roads, parking lots, or the general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precaution limitation in Section II.C.5 (ARM 17.8.749).

7. Holcim shall not cause or authorize to be discharged into the atmosphere visible emissions from any source installed on or before November 23, 1968, that exhibit an opacity of 40% or greater averaged over 6 consecutive minutes (ARM 17.8.304).

8. Holcim shall not cause or authorize to be discharged into the atmosphere visible emissions from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).

9. Holcim shall not cause or authorize the following to be discharged into the atmosphere, from the Finish Mill #2 baghouse.

   a. Particulate matter in excess of 0.02 gr/dscf (ARM 17.8.752), and

   b. Visible emissions that exhibit an opacity of 10% or greater averaged over 6 consecutive minutes (ARM 17.8.340).

10. Holcim shall not cause or authorize the following to be discharged into the atmosphere from the Dixie Mill baghouse(s) (formerly the coal/coke baghouse).

    a. Particulate matter in excess of 0.02 gr/dscf (ARM 17.8.752), and

    b. Visible emissions that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.340).

11. Holcim shall not cause or authorize the following to be discharged into the atmosphere from the coke system baghouse.

    a. Particulate matter in excess of 0.02 gr/dscf (ARM 17.8.752), and

    b. Visible emissions that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.340).

12. Holcim shall not cause or authorize the following to be discharged into the atmosphere from the pozzolan material silo baghouse (ARM 17.8.752).

    a. Particulate matter in excess of 0.02 gr/dscf, and

    b. Visible emissions that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.

13. Holcim shall comply with all applicable requirements of ARM 17.8.340, which references 40 CFR Part 60, Standards of Performance for New Stationary Sources.

    a. Subpart F, Standards of Performance for Portland Cement Plants, shall apply to sources at Holcim including, but not limited to, the following:

        i. Finish Mill #2
        ii. Finish Mill #4
        iii. Storage Silos #26 through 30

    b. Holcim shall not cause or authorize to be discharged into the atmosphere from the Finish Mill #4, visible emissions that exhibit 10% opacity or greater (40 CFR Part 60, Subpart F and ARM 17.8.340).

    c. Holcim shall not cause or authorize to be discharged into the atmosphere from the Finish Mill #2, visible emissions that exhibit 10% opacity or greater (40 CFR Part 60, Subpart F and ARM 17.8.340).

    d. Holcim shall not cause or authorize to be discharged into the atmosphere from Storage Silos #26 through 30, visible emissions that exhibit 10% opacity or greater (40 CFR Part 60, Subpart F and ARM 17.8.340).

14. Holcim shall not cause or authorize to be discharged into the atmosphere visible emissions that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes when handling landfilled cement kiln dust (ARM 17.8.749).

15. Holcim shall comply with all applicable provisions of 40 CFR 63, Subpart LLL, National Emission Standards for Hazardous Air Pollutants (NESHAP) from the Portland Cement Manufacturing Industry. The Holcim Trident facility was designated an area source for the purposes of determining the applicability of Portland Cement Maximum Achievable Control Technology (PC MACT). The compliance date for an owner or operator of an existing affected source subject to the provisions of 40 CFR 63, Subpart LLL is June 14, 2002 (ARM 17.8.342).

D. Testing Requirements

1. Holcim shall conduct an initial performance source test on the kiln to determine compliance with the applicable particulate emission limit in Section II.C.1 within 180 days of installation of the system. Holcim shall conduct additional particulate emission limit tests at least once every 5-years thereafter, or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105 and ARM 17.8.749).

2. Holcim shall conduct initial visible emission observations to assess compliance with the opacity limit in Section II.C.9 for the Finish Mill #2 baghouse within 180 days of installation of the system. Holcim shall conduct additional visible emission observations at least once every 5 years, thereafter, or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105 and ARM 17.8.340).

3. Holcim shall conduct an initial performance source test on the Finish Mill #2 baghouse to determine compliance with the applicable particulate emission limit in Section II.C.9 within 180 days of installation of the system. Holcim shall conduct additional particulate emission limit tests at least once every 5 years thereafter, or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105, ARM 17.8.749, and ARM 17.8.340).

4. Holcim shall conduct initial visible emission observations to assess compliance with the opacity limit in Section II.C.10 for the Dixie Mill baghouse within 180 days of installation of the system. Holcim shall conduct additional visible emission observations at least once every 5-years thereafter, or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105 and ARM 17.8.749).

5. Holcim shall conduct an initial performance source test on the Dixie Mill baghouse to determine compliance with the applicable particulate emission limit in Section II.C.10 within 180 days of installation of the system. Holcim shall conduct additional particulate emission limit tests at least once every 5-years thereafter, or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105 and ARM 17.8.749).

6. Holcim shall conduct initial visible emission observations to assess compliance with the opacity limit in Section II.C.11 for the coke system baghouse within 180 days of installation of the system. Holcim shall conduct additional visible emission observations at least once every 5-years thereafter, or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105 and ARM 17.8.749).

7. Holcim shall conduct an initial performance source test on the coke system baghouse to determine compliance with the applicable particulate emission limit in Section II.C.11 within 180 days of installation of the system. Holcim shall conduct additional particulate emission limit tests at least once every 5-years thereafter, or according to another testing/ monitoring schedule as may be approved by the Department (ARM 17.8.105 and ARM 17.8.749).

8. Holcim shall demonstrate compliance with the NO_x and SO_2 emission limits in Section II.C.1 (b) and (c) by conducting source tests on the kiln for NO_x and SO_2 concurrently. The source tests shall be conducted under conditions representative of Holcim's operating conditions. Holcim shall conduct the initial source test within 90 days after Holcim first burns in excess of 25% petroleum coke as a fuel in the kiln, based on a Btu input value. Holcim shall provide the Department written notice within 5 business days after it first commences burning in excess of 25% petroleum coke as a fuel in the kiln. Holcim shall conduct additional compliance source testing demonstrations for the kiln at least once every 2 years thereafter unless the Department in writing approves or requires a different testing schedule. After three source tests have been performed, Holcim may request a review of the testing frequency (ARM 17.8.105 and ARM 17.8.749).

9. Holcim shall monitor compliance with the NO_x and SO_2 emission limits in Section II. C.1 (b), (c), and (d) by CEMS. Subject to any presumption created by the compliance demonstration tests conducted under Section II.D.8 and the provisions of ARM 17.8.132, the data generated from the CEMS may be used in any subsequent proceeding regarding compliance with those emission limits. Holcim shall install, calibrate, and conduct performance specification procedures on the CEMS within 275 days after Holcim first burns in excess of 25% petroleum coke as a fuel in the kiln. These CEMS must be operated while the kiln is operating and must measure the NO_x and SO_2 emissions, including the volumetric flowrate. These CEMS shall complete one cycle of operation

(sampling, analyzing, and data recording) for each successive 15-minute period. The performance specification procedures conducted by Holcim must conform to 40 CFR Part 60, Appendix B, Specification 2 and 6 and be approved by the Department. On-going quality assurance requirements must conform to 40 CFR Part 60, Appendix F.

10. Holcim shall monitor compliance with the CO emission limit contained in Section II.C.2 with a CO CEMS. Holcim shall install, calibrate, and conduct performance specification procedures on the CEMS within 180 days after Holcim first burns tires as a fuel in its kiln. The CO CEMS must be operated while the kiln is operating and must measure the CO emissions, including the volumetric flowrate. The performance specification procedures conducted by Holcim must conform to 40 CFR Part 60, Appendix B, Specification 4 and 6 and be approved by the Department. On-going quality assurance requirements must conform to 40 CFR Part 60, Appendix F (ARM 17.8.749).

11. Holcim shall monitor compliance with the Dioxin/Furan emission limits in Section II.C.1.e by conducting a source test on the kiln emissions for dioxins/furans within 180 days of beginning to combust tires as a fuel in the kiln. The source test shall be conducted under conditions representative of Holcim's operating conditions and shall be conducted in accordance with the methodology described in 40 CFR 63, Subpart LLL. Holcim shall conduct additional compliance source testing demonstrations for the kiln at least once every 30 months after the initial source test, unless otherwise approved by the Department in writing (ARM 17.8.105, ARM 17.8.749, and 40 CFR 63, Subpart LLL).

12. Holcim shall conduct a source test on the kiln for cadmium, chromium, lead, arsenic, beryllium, manganese, mercury, and PAH without using tires as a fuel to establish a baseline of the emissions of these pollutants. Additional baseline source testing demonstrations for the kiln shall occur at least once per year thereafter or according to another testing/monitoring schedule as may be approved by the Department. After three source tests have been performed to show a representative baseline, Holcim may request a review of the testing frequency (ARM 17.8.105 and ARM 17.8.749).

13. Within 180 days after commencing operation with tires as a fuel for the process, Holcim shall conduct a source test on the kiln for cadmium, chromium, lead, arsenic, beryllium, manganese, mercury, and PAH while using tires as part of the fuel mixture. The measured emissions from the baseline testing required by Section II.D.12 shall be subtracted from the measured emissions while using tires as part of the fuel mixture, and the difference in emissions shall be used to monitor compliance with the cadmium, chromium, lead, arsenic, beryllium, manganese, mercury, PAH, and VOC limits in Section to II.C.3. Additional compliance source testing demonstrations for the kiln shall occur at least once per year thereafter or according to another testing/monitoring schedule as may be approved by the Department. After three source tests have been performed that demonstrate compliance with the permit limits, Holcim may request a review of the testing frequency (ARM 17.8.105 and ARM 17.8.749).

14. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

15. The Department may require further testing (ARM 17.8.105).

E. Operational Reporting Requirements

1. Holcim shall supply the Department with annual production information for all emission points, as required by the Department in the annual emission inventory request. The request will include, but is not limited to, the amount of pozzolan material used, the amount of post-consumer recycled container glass used in the kiln, the amount of

landfilled cement kiln dust handled, the amount of clinker produced in the kiln, the amount of total product handled, and the number of tires used as fuel in the kiln (ARM 17.8.749).

Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information may be used for calculating operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505).

2. Holcim shall notify the Department of any construction or improvement project conducted, pursuant to ARM 17.8.745(1), that would include a change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation or the addition of a new emission unit. The notice must be submitted to the Department, in writing, 10 days prior to start up or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(1)(d) (ARM 17.8.745).

3. Holcim shall document, by month, the amount of pozzolan material used in the pozzolan material system. By the 10th day of each month, Holcim shall total the amount of pozzolan material use during the previous 12 months to verify compliance with the limitation in Section II.B.3. The records compiled shall be maintained by Holcim as a permanent business record for at least 5 years following the date of the recording, shall be submitted to the Department upon request, and shall be available at the plant site for inspection by the Department (ARM 17.8.749).

4. Holcim shall document, by month, the amount of post-consumer recycled container glass used in the kiln. By the 10th day of each month, Holcim shall total the amount of recycled glass used in the kiln during the previous 12 months to verify compliance with the limitation in Section II.B.4. A written report of the compliance verification, including the previous 12 month totals of recycled glass used, shall be submitted annually to the Department no later than March 1 and may be submitted along with the annual emission inventory (ARM 17.8.749).

5. Holcim shall document, by month, the amount of landfilled cement kiln dust handled. By the 10th day of each month, Holcim shall total the amount of cement kiln dust handled during the previous 12-months to verify compliance with the limitation in Section II.B.5. A written report of the compliance verification, including the previous 12-month totals of landfilled cement kiln dust handled, shall be submitted annually to the Department no later than March 1 and may be submitted along with the annual emission inventory (ARM 17.8.749).

6. Holcim shall document, by month, the amount of kiln production. By the 10th day of each month, Holcim shall total the amount of kiln production during the previous 12 months to verify compliance with the limitation in Section II.B.6. A written report of the compliance verification, including the previous 12 month totals of kiln production, shall be submitted annually to the Department no later than March 1 and may be submitted along with the annual emission inventory (ARM 17.8.749).

7. Holcim shall document, by month, the amount of clinker handling. By the 10th day of each month, Holcim shall total the amount of clinker handling during the previous 12 months to verify compliance with the limitation in Section II.B.7. A written report of the

compliance verification, including the previous 12-month totals of clinker handling, shall be submitted annually to the Department no later than March 1 and may be submitted along with the annual emission inventory (ARM 17.8.749).

8. Holcim shall document that conveyor covers, transfer point covers, or structural enclosures surrounding process equipment were maintained and in place during operation of process equipment. The records shall include all repair and maintenance activity to all conveyor covers, transfer point covers, or structural enclosures. The records must include, but are not limited to, the date, time, and action(s) taken for repair and maintenance.

9. Holcim shall provide to the Department reports from the CEMS for NO_x and SO_2, which conform to 40 CFR Section 60.7(c). Holcim shall provide these reports on a quarterly basis for the first year after the CEMS are operating and the performance specification procedures have been approved in writing by the Department and semi-annually thereafter.

10. Holcim shall document, by day, the percentage of total fuel heat input that is provided to the kiln by the combustion of tires. By the 10th day of each month, Holcim shall total the percentage of total fuel heat input that was provided to the kiln by the combustion of tires during the previous 12-month period to verify compliance with the limitation in Section II.B.9. A written report, including the previous 12-month total fuel heat input to the kiln that is provided by the combustion of tires, shall be submitted annually to the Department no later than March 1st and may be submitted along with the annual emission inventory (ARM 17.8.749).

11. Holcim shall document, by month, the number of tires placed in the kiln for combustion. By the 10th day of each month, Holcim shall total the number of tires placed in the kiln during the previous 12 months to verify compliance with the limitation in Section II B.11. A written report, including the previous 12-month total of tires shall be submitted annually to the Department no later than March 1st and may be submitted along with the annual emission inventory (ARM 17.8.749).

12. Holcim shall document the use of tires as a supplemental fuel source for the kiln during upset or malfunction conditions. The records must include, but are not limited to, the date and time of the upset, type or category of upset, the duration of the upset, and a description of whether or not the tires were removed from the feed and if so, when they were removed (ARM 17.8.749).

13. All records compiled in accordance with this permit must be maintained by Holcim as a permanent business record for at least 5 years following the date of the measurement, must be available at the plant site for inspection by the Department, and must be submitted to the Department upon request (ARM 17.8.749).

F. Notification

1. Holcim shall provide the Department with written notification of commencement of using tires as a fuel for the kiln within 15 days after commencement of the use of tires as a fuel for the kiln (ARM 17.8.749).

2. Holcim shall provide the Department with the general engineering design specifications and a brief overview and discussion of the gate used to drop tires into the kiln at least 15 days prior to commencement of the kiln modification (ARM 17.8.749).

SECTION III: General Conditions

A. Inspection – Holcim shall allow the Department's representatives access to the source at all times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (CEMS, CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.

B. Waiver – The permit and all the terms, conditions, and matters stated herein shall be deemed accepted if Holcim fails to appeal as indicated below.

C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving Holcim of the responsibility for complying with any applicable federal or Montana statute, rule or standard, except as specifically provided in ARM 17.8.740, *et seq.* (ARM 17.8.756).

D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement as specified in Section 75-2-401, *et seq.*, MCA.

E. Appeals – Any person or persons jointly or severally adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The Department's decision on the application is not final unless 15 days have elapsed and there is no request for a hearing under this section. The filing of a request for a hearing postpones the effective date of the Department's decision until the conclusion of the hearing and issuance of a final decision by the Board.

F. Permit Inspection – As required by ARM 17.8.716, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by Department personnel at the location of the permitted source.

G. Permit Fee – Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by Holcim may be grounds for revocation of this permit, as required by, that section and rules adopted thereunder by the Board.

PERMIT ANALYSIS
Holcim (US) Inc.
Permit #0982-11

I. Introduction/Process Description

A. Permitted Equipment

Holcim (US) Inc. (Holcim) operates the following equipment at the Trident facility located in the Northeast ¼ of Section 9, Southeast ¼ of Section 4, Southwest ¼ of Section 3, and Northwest ¼ of Section 10, Township 2 North, Range 2 East, approximately 5 miles northeast of Three Forks in Gallatin County, Montana.

Source Description	Control Equipment	Efficiency
Disturbed Area – Fugitive		
Drilling		
Blasting		
Limestone, Sand, Shale Removal		
Transfer, Conveying, and Screening		
Raw Material Storage Piles		
Haul Roads – Fugitives	Dust suppression	85%
Primary Crusher	Fabric filter	99%
Crusher Screen	Fabric filter	99%
Raw Material Silo #1	Fabric filter	99%
Raw Material Silos #2 and 3	Fabric filter	99%
Raw Material Silos #4 and 5	Fabric filter	99%
Raw Material Silos #6 and 7	Fabric filter	99%
Coal/Coke Unload Fugitive		
Coal/Coke Transfer Handling Fugitive		
Coal Outside Storage Pile		
Coke Outside Storage Pile		
Coal Crusher	Fabric filter	99%
Coal Silo – Loading	Fabric filter	99%
Coal Silo - Unloading	Fabric filter	99%
Fluid Coke Silo – Loading		
Fluid Coke Silo Unloading		
Kiln	ESP	
Clinker Cooler	Fabric filter	99.8%
Inside Clinker Transfer	Fabric filter	99.8%
Gypsum/Clinker Storage Silo	Fabric filter	99%
Cement Kiln Dust Storage Load	Fabric filter	99%
Cement Kiln Dust Storage Unloading	Dust suppression	50%
Emergency Clinker Bins Loading	Fabric filter	99%
Emergency Clinker Storage Silo 1		
Emergency Clinker Storage Silo 2		
Emergency Clinker Storage Silo 3		
Emergency Clinker Storage Silo 4		
#2 Finish Mill	Fabric filter	99%
Clinker Transfer #2 Finish Mill	Fabric filter	99%
#3 Finish Mill Transfer	Fabric filter	99%
#3 Finish Mill	Fabric filter	99%
Clinker Transfer #4 Finish Mill	Fabric filter	99%
#4 Finish Mill Product Separator	Fabric filter	99.8%
#4 Finish Mill Vent	Fabric filter	99.8%
Masonry Storage Bins 1- 3	Fabric filter	95%
Cement Storage Silos 4 – 5	Fabric filter	99%
Cement Sack Machine #1	Fabric filter	98%
Cement Sack Machine #2	Fabric filter	98%
Cement Sack Machine #3	Fabric filter	98%
Cement Sack Machine #4	Fabric filter	98%
Cement Silos 1-7, 10, 11, 13	Fabric filter	99%
Cement Silos #8, 9, 12	Fabric filter	99%
Cement Transfer 1-13 to Bulk	Fabric filter	99%

Source Description	Control Equipment	Efficiency
Cement Storage Silo 14-25	Fabric filter	99%
Cement Storage Silo 26-30	Fabric filter	99%
Bulk Cement Transfer and Truck Loadout 1	Fabric filter	99%
Bulk Cement Transfer and Truck Loadout 2	Fabric filter	99%
Bulk Cement Rail Car Loadout	Fabric filter	99%
Diesel Fuel		
Gasoline		
Pozzolan Material Storage Silo	Fabric filter	99%
Rotary Feeder	Fabric filter	95%
Weighbelt Conveyor	Fabric filter	95%
Screw Line (conveyor)	Fabric filter	95%
Handling Landfilled Cement Kiln Dust	Water spray	50%
Waste Oil Burner		

B. Facility Description

Holcim operates the Trident Portland cement manufacturing plant near Three Forks, Montana. The facility operates 24 hours per day and 365 days per year, with periods of routine maintenance. Raw materials, such as limestone, shale, and sandstone, are mined at the Trident site. Raw materials, as well as iron ore purchased from outside vendors, are crushed, screened, and stored on-site in dedicated silos.

Measured amounts of each material are conveyed to the raw materials mill where water is added and the mixture is pulverized to a "fine" slurry. Slurry is sent to Trident's only kiln, where clinker is produced. Clinker is then sent to the clinker cooler and cooled from approximately 2,500 °F to 150 °F and then transferred to storage silos or alternative storage sites if the silos are full. Clinker is mixed with 5% gypsum and pulverized to produce Portland cement. The cement enters a high efficiency air separator and is sent to a dust collector. Cement from the dust collector is sent to a cement cooler via an air slide and the cooled cement is then pneumatically conveyed to onsite cement storage silos.

C. Permit History

On April 27, 1971, the Ideal Cement Company received Permit #**282-072171**. This permit approved the construction of 10 pieces of control equipment, as follows:

1. An electrostatic precipitator to control kiln emissions sized for 300,000 cfm @ 700 °F, 15 gr/acfm inlet, 0.15 gr/acfm outlet, and 99.9% efficiency.

2. A pulsejet type baghouse to control clinker cooler emissions sized for 100,000 cfm @ 350 °F, 8.3: 1 air/cloth ratio, and Nomex bags.

3. Four Micro-pulsaire dust collectors on the rock silos as follows:

    - A total of two @ 7.4:1 air/cloth ratio, 843 ft^2 cloth area, Model IF124
    - A total of two @ 7.8:1 air/cloth ratio, 670 ft^2 cloth area

4. Two Micro-pulsaire dust collectors to control emissions from crushing and screening as follows:

    - Crushing – Micro-pulsaire model IFI-48, 7200-cfm capacity fan
    - Screening – Micro-pulsaire model IFI-24, 6400-cfm capacity fan

5. One small baghouse to control emissions at the clinker belt conveyor.

6. One small baghouse to control emissions at the dustbin near the precipitator.

On May 3, 1971, the Ideal Cement Company received Permit #**293-080471** to construct five pieces of equipment.

1. Primary Crusher, 450 tons per hour
2. Vibrating Screen, 6 ft x 12 ft, Missouri-Rodgers
3. Raw Mill, 11 ft x 34 ft, Bawl Mill, 2,000 hp, F.L. Smith
4. Kiln, 12 ft x 450 ft, Wet Process Rotary Kiln, F.L. Smith, 400 hp, kiln draft fan
5. Clinker Cooler, Folax Grates, F.L. Smith

Commitments to the construction of this equipment were made prior to August 17, 1971, so the equipment is not subject to 40 CFR 60, Subpart F, Standards of Performance for Portland Cement Plants.

On April 16, 1975, the Ideal Cement Company was issued Permit #**811-050475** to combust coal in the cement kiln.

On July 19, 1976, Ideal Basic Industries was issued Permit #**982** to construct four Portland cement storage silos. These silos were controlled by a baghouse.

On January 6, 1984, a modification to Permit #**811-050475** was issued to Ideal Basic Industries, that allowed the gas/coal-fired cement kiln to burn a coal (75%)/coke (25%) combination fuel. However, as a result of increases in NO_x emissions observed from the August 1983 source tests, the Montana Department of Environmental Quality (Department) issued a letter on January 9, 1984, that stated they would grant a permit modification only if there were no increases in emissions. Therefore, additional NO_x source testing was completed in June and August of 1985 and July of 1986. Results of the July of 1986 testing showed that a major permit modification was not required. On June 25, 1986, an application was submitted from Ideal Basic Industries to burn up to 50% coke, but a permit action was not issued.

On August 9, 1990, Holnam submitted Permit Application #**0982-01** for the use of alternative fuels in the cement kiln. This permit application was withdrawn.

On November 22, 1993, Holnam submitted Permit Application #**0982-02** for the replacement of sections of the cement kiln. The changes proposed in the application were determined to be maintenance and did not require a permit change.

Permit #**0982-03** was issued to Holnam on July 29, 1995. Holnam proposed to upgrade the existing cement Finish Mill #2 baghouse to a modern baghouse; replace the Finish Mill #2 air slide; replace two existing dust collectors on the coal/coke process with one unit; and construct a separate coke grinding, storage, and transport system with dust collection. The Finish Mill #2 baghouse, which replaced an existing baghouse, controlled the emission units listed below.

1. A replacement air slide
2. The clinker/gypsum feed belt via a booster fan
3. The Finish Mill #2
4. The bucket elevator
5. The product separator

The air slide was totally enclosed and was necessary for the transport of cement from the elevator to the product separator (air separator).

The replacement of two existing dust collectors on the coal/coke baghouse controlled the equipment listed below.

1. A diverter valve at the top of the existing coal/coke storage silo
2. A 24-inch covered screw conveyor that transports the coke from the above diverter valve
3. A 290-ton "raw" coke storage silo
4. Two diverter valves
5. The hammermill
6. The bucket elevator
7. The coal/coke storage silo
8. The covered screw conveyor

The separate coke system transported coke on the existing path up to the point of delivery into the top of the coal/coke storage silo. At this point, the system incorporated a gate that discharged into a 290-ton capacity "raw" coke storage silo. Coal was diverted into the existing coal/coke storage silo. The proposed raw coke storage silo gravity fed onto a covered belt assembly, where the material was weighed before it was gravity fed into the coke-grinding mill. The ground coke fines were then evacuated from the coke grinding mill via a 15,400-cfm fan that pneumatically transported the crushed coke to the proposed coke system baghouse where the gas and solid phases were separated. The ground "fine" coke material discharged from this dust collector into a 220-ton "fine" coke storage silo. Pneumatic transport of the fine coke particles from this silo to the kiln hood was facilitated by a coke blower system. The proposed coke system baghouse and fan controlled the equipment listed below.

1. A belt conveyor with weighing system at the base of the raw coke storage silo
2. A coke grinding mill
3. A 220-ton "fine" coke storage silo

The emission increase as a result of the changes was estimated at 10.84 tons/year of particulate matter.

Permit #**0982-04** was issued on May 8, 1998. Holnam submitted a complete permit application on March 30, 1998. The application proposed a pozzolan material (fly ash) system that included the following new equipment: pozzolan material storage silo with bin vent dust collector, rotary feeder, weighbelt conveyor, and screw line (conveyor). Holnam intended to introduce pozzolan material at the finish mill to produce Holnam Performance Cement (HPC). Controlled PM_{10} emissions from the equipment were approximately 2.10 tons per year. The permit also updated the compliance demonstrations and notifications that were completed and rule references that were outdated. Permit #0982-03 had included conditions from Permits #282-072171, #293-080471, #811-050475, #982, and Modification #811-050475. Therefore, Permit #0982-04 also replaced these permits.

Permit Modification #**0982-05** was issued on September 3, 1998, to allow Holnam to conduct a test burn that exceeded the operational limit to burn up to 25% petroleum coke. The amount of petroleum coke burned in the kiln was limited so that 15 tons per year of SO_2 was not exceeded; therefore, this test burn was completed according to the Administrative Rules of Montana (ARM) 17.8.705(1)(q). However, as described in ARM 17.8.733(1)(c), the permit needed to be modified to allow the temporary burning of petroleum coke in excess of the permitted limitation. Holnam was required to comply with the sulfur-in-fuel requirements contained in ARM 17.8.322(6)(c) and to maintain records to demonstrate compliance with the petroleum coke limitation in Section II.F.1.b of Permit #0982-05. In addition, testing was required to determine emissions at the maximum rate of petroleum coke burned. Permit #0982-05 replaced Permit #0982-04. The Department received notification that test burning began on November 14, 1999, and concluded on November 14, 2000. Coke test burn air emission source testing was conducted November 1 through 4, 2000.

Permit #**0982-06** was issued on January 24, 1999. The 99.9% control efficiency for removal of particulate emissions from the kiln exhaust using an electrostatic precipitator (ESP) in Section II.A.4 of the permit was removed. The change did not result in an increase in allowable particulate emission rates from the kiln. Permit #0982-06 replaced Permit #0982-05.

Holnam proposed (in permit application #**0982-07**) to use 800 tons/year of post-consumer recycled container glass in the kiln and to handle 85,000 tons/year of landfilled cement kiln dust. Holnam submitted an emission inventory that identified 5.13 pounds/year of emissions of hazardous air pollutants (HAP) being emitted as a result of using post-consumer recycled container glass. Holnam submitted a health risk assessment that demonstrated that this proposal constituted a negligible risk to human health and the environment. In addition, handling 85,000 tons/year of landfilled cement kiln dust involved moving landfilled dust from the landfill with a front-end loader to a truck. A small portion of the cement kiln dust was sold for use in reclamation projects. Handling the cement kiln dust resulted in an emissions increase of approximately 23.8 tons per year of total particulate matter and 11.9 tons/year of PM_{10}. Permit #0982-07 replaced Permit #0982-06.

Permit **#0982-08** was issued on December 29, 1999, to correct condition II.B.5, which was intended to limit the use of pozzolan material fed through the pozzolan material system. This is specific to the pozzolan material storage silo, rotary feeder, weighbelt conveyor, screw line, and bin vent dust collector, and not the entire facility. Also, condition II.E.3 was updated to reflect this correction. Permit #0982-08 replaced Permit #0982-07.

Permit **#0982-09** was issued on October 20, 2000. On August 10, 2000, Holnam submitted a permit application to request federally enforceable permit conditions to limit potential particulate matter emissions. Holnam requested the federally enforceable conditions to ensure that the facility's potential emissions would be within the "area source" definition as defined in the Portland Cement Maximum Achievable Control Technology (PC MACT). Although this permit action could have been accomplished through a permit modification, an alteration was requested by Holnam to allow the public to comment on the permit. De minimis changes were also added to the permit (Department Decision) during the comment period. Permit #0982-09 replaced Permit #0982-08.

On February 20, 2001, the Department received a letter from Holnam requesting a de minimis change to Permit #0982-09 resulting from the recycling of cement kiln dust (CKD) directly back into the kiln. The Department agreed that emissions from the transfer of CKD would be a de minimis change to Permit #0982-09. Holnam, therefore, was not required to obtain a permit alteration to commence with this project.

On April 11, 2001, Holnam submitted a request to modify preconstruction Permit #0982-09 to change or modify language in the permit. In general, requests included removal of detailed equipment names and facility documentation requirements for pozzolan material, post consumer recycled container glass, and amount of lime kiln dust handled from the "3rd day of each month" to the "10th day of each month."

On June 19, 2001, Permit **#0982-10** was appealed by The Sierra Club, Montana's Against Toxic Burning, and Montana Environmental Information Center. Permit #0982-10 allowed Holcim to increase the combustion of coke from 25% of the fuel mixture to 50% of the fuel mixture. The appeal of Permit #0982-10 was dismissed and issued with modifications on December 04, 2001.

On November 16, 2001, subsequent to the submittal of this application, the appeal of Permit #0982-10 was dismissed and issued with modifications. These modifications and conditions in Permit #0982-10 were incorporated to the permit and the final permit was issued on December 4, 2001.

On November 14, 2001, the Department received written notification that Holnam, Inc. intended to officially change its name to Holcim on December 12, 2001. In a letter dated November 19, the Department approved the request to transfer under ARM 17.8.734(2) with all of Holcim's applicable permit conditions remaining the same.

D. Current Permit Action

On October 3, 2001, Holcim's Trident facility submitted to the Department an application for an alteration to Montana Air Quality Permit #0982-10. This permit alteration requested the mid-kiln combustion of whole waste tires for up to 15 percent of the total fuel heat input to the kiln on a Btu basis. A complete permit application was provided to the Department on November 15, 2002. Holcim is currently authorized to burn natural gas, coal, petroleum coke, or any combination of these as a fuel for the kiln. This project would entail some limited modification to kiln shell and additional miscellaneous equipment to handle and store tires at the facility. Since the Montana Code Annotated (MCA) 75-2-215 for solid waste incineration was applicable to this project, a human health risk assessment was required with the air quality application in accordance with ARM 17.8.706(5). In order to limit emissions and protect Montana's negligible risk standards, emission limits for cadmium, chromium, lead, polycyclic aromatic hydrocarbons (PAHs), and volatile organic compounds (VOCs) were placed in the Permit #0982-11. In addition, analysis by Holcim determined that carbon monoxide (CO) emissions could potentially increase above the Prevention of Significant Deterioration (PSD) threshold; therefore, an emission limit was established for CO.

E. Additional Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT) determinations, air quality impacts, and environmental assessments, is included in the analysis associated with each change to the permit.

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the ARMs and are available, upon request, from the Department. Upon request, the Department will provide references for locations of complete copies of all applicable rules and regulations or copies where appropriate.

A. ARM 17.8, Subchapter 1 - General Provisions, including, but not limited to:

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.

3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source, or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq.*, Montana Code Annotated (MCA).

   Holcim shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation, or to continue for a period greater than 4 hours.

5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction in the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner that a public nuisance is created.

B. ARM 17.8, Subchapter 2 - Ambient Air Quality, including, but not limited to:

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
6. ARM 17.8.221 Ambient Air Quality Standard for Visibility
7. ARM 17.8.222 Ambient Air Quality Standard for Lead
8. ARM 17.8.223 Ambient Air Quality Standard for PM_{10}

Holcim must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3 - Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into an outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.

2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of 20 % for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate. (2) Under this rule, Holcim shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.

3. ARM 17.8.309 Particulate Matter Fuel, Burning Equipment. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this section.

4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this section.

5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. This rule requires that no person shall burn liquid, solid, or gaseous fuel in excess of the amount set forth the in this section.

6. ARM 17.8.340 Standard of Performance for New Stationary Sources. This rule incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources. The owner and operator of any stationary source or modification, as defined and applied in 40 CFR Part 60, shall comply with the standards and provisions of 40 CFR Part 60.

   Subpart F – Standards of Performance for Portland Cement Plants. The provisions of this Subpart are applicable to the following affected facilities in Portland cement plants: kiln, clinker cooler, raw mill system, finish mill system, raw mill dryer, raw material storage, clinker storage, finished product storage, conveyor transfer points, bagging and bulk loading and unloading systems. Sources subject to the requirements of this Subpart are applicable if the facility commences construction or modification of that source after August 17, 1971. This Subpart shall apply to sources at Holcim, including, but not limited to, the following:

   a. Finish Mill #2
   b. Finish Mill #4
   c. Storage Silos #26 through 30

   Finish Mill #4 replaced Finish Mill #1 in 1988 and the product storage silos were installed in 1976. Since commencement of construction occurred after August 17, 1971, for both of these sources, 40 CFR 60, Subpart F applies. The replacement of the air slide in the Finish Mill #2 system was considered a modification of the Finish Mill #2 system. Since this modification was proposed to occur after August 17, 1971, then 40 CFR Part 60, Subpart F was also considered applicable to Finish Mill #2.

7. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. This rule incorporates, by reference, 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants (NESHAPs). The owner and operator of any stationary source or modification, as defined and applied in 40 CFR Part 63, shall comply with the standards and provisions of 40 CFR Part 63, Subpart LLL.

   Subpart LLL - NESHAPs for The Portland Cement Manufacturing Industry. The Holcim Trident Plant must comply with all applicable requirements of this Subpart. On October 14, 1999, the Department received initial notification designating the Trident Plant a major source. Holcim completed testing for the facility to determine if emissions of HAPs and HCl could re-designate the facility as an area source. Results of the testing indicated that it was an area source for the purposes of determining the applicability of PC MACT. As an area source, the Trident Plant must meet specific limitations including a dioxin and furan emission limit for the kiln. On June 10 and 11, 2002, Holcim successfully conducted dioxin and furan testing and met the emission limit for the kiln in accordance with the PC-MACT.

D. ARM 17.8, Subchapter 5 - Air Quality Permit Application, Operation and Open Burning Fees, including, but not limited to:

   1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. Along with the air quality application, Holcim submitted the appropriate permit application fee for the current permit action.

2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit, excluding an open burning permit, issued by the Department. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

   An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that pro-rate the required fee amount.

E. ARM 17.8, Subchapter 7 - Permit, Construction and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a facility to obtain an air quality permit or permit alteration if they construct, alter or use any air contaminant sources that have the potential to emit greater than 25 tons per year of any pollutant. Holcim has the potential to emit more than 25 tons per year of several criteria pollutants; therefore, an air quality permit is required.

3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.

4. ARM 17.8.745 Montana Air Quality Permits—Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that are not subject to the Montana Air Quality Permit Program.

5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, alteration or use of a source. Holcim submitted the required permit application for the current permit action. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. Holcim submitted an affidavit of publication of public notice for the October 10, 2001, issue of the *Three Forks Herald*, a newspaper of general circulation in the Town of Three Forks in Gallatin County, as proof of compliance with the public notice requirements. In addition, in accordance with MCA 75-2-215, Holcim submitted affidavits of publication for the second and third public notices as proof of compliance with the public notice requirements. The notices were published in the *Bozeman Daily Chronicle* on March 20, 2002, and April 18, 2002, in the *Three Forks Herald* on April 10, 2002, and March 27, 2002, in the *Manhattan-Churchill Times* on April 9, 2002, and the *Belgrade High Country Independent Press* on March 21, 2002.

6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.

7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of this permit analysis.

8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.

9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving Holcim of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq*.

10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.

11. ARM 17.8.760 Additional Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those applications that require an environmental impact statement.

12. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or altered source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.

13. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).

14. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, subchapters 8, 9, and 10.

15. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of Intent to Transfer, including the names of the transferor and the transferee, is sent to the Department.

16. ARM 17.8.770 Additional Requirements for Incinerators. This rule specifies the additional information that must be submitted to the Department for incineration facilities subject to 75-2-215, MCA.

F. ARM 17.8, Subchapter 8 - Prevention of Significant Deterioration of Air Quality including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.

2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications--Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through 17.8.827 shall apply to any major stationary source and any major modification with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.

   Holcim is a major stationary source because it has the potential to emit more than 250 tons per year of a pollutant. This permitting action (#0982-11) will potentially increase CO emissions above the PSD threshold of 100 tons per year. Based on the analysis of the potential increase in CO emission, the Department established an emission limit in Permit #0982-11.

G. ARM 17.8, Subchapter 12 - Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any stationary source having:

   a. Potential to Emit (PTE) > 10 tons/year of any one HAP, PTE > 25 tons/year of a combination of all HAPs, or lesser quantity as the Department may establish by rule.

   b. PTE > 100 tons/year of any pollutant.

   c. Sources with the PTE > 70 tons/year of PM_{10} in a serious PM_{10} nonattainment area.

2. ARM 17.8.1204 Air Quality Operating Permit Program Applicability. (1) Title V of the FCAA amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing Air Quality Permit #0982-11 for Holcim, the following conclusions were made.

   a. The facility's PTE is greater than 100 tons/year for several pollutants.

   b. The facility's PTE is less than 10 tons/year for and one HAP and less than 25 tons/year for all HAPs.

   c. This source is not located in a serious PM_{10} nonattainment area.

   d. This facility is not subject to a current NSPS (40 CFR 60, Subpart F).

   e. This facility is subject to a current NESHAP standard (40 CFR 63, Subpart LLL).

   f. This source is not a Title IV affected source, nor a solid waste combustion unit.

   g. This source is not an EPA designated Title V source.

   Based on these facts, the Department determined that Holcim is a major source of emissions as defined under Title V. Title V of the FCAA Amendments of 1990 requires that all sources, as defined in ARM 17.8.1204 (1), obtain a Title V Operating Permit. Holcim's operating permit became effective on July 26, 2001.

III. BACT Determination

A Best Available Control Technology (BACT) determination is required for each new or altered source. Holcim shall install on the new or altered source the maximum air pollution control capability, which is technically practicable and economically feasible, except that BACT shall be utilized. The BACT analysis included analyzing add-on controls such as regenerative thermal oxidizers (RTO) and regenerative catalytic oxidizers (RCO) for carbon monoxide (CO) and RTO, RCO, and adsorption for HAPs emissions. A summary of the analysis of these controls is shown below.

A. CO BACT Analysis

1. Oxidation

The process of oxidation breaks down and destroys the CO in the gas stream to form CO_2 and water vapor. Operational variables such as temperature, residence time, and turbulence of the system affect CO control efficiency. Incinerators or oxidizers have the potential for high CO control efficiency; however, this efficiency typically comes at the expense of increasing NO_x production. A thermal incinerator operates at temperatures between 1,450°F and 1,600°F. Catalytic incineration is similar to thermal incineration; however, catalytic incineration allows for oxidation at temperatures ranging from 600°F to 1,000°F. The catalyst systems that are used are typically metal oxides such as nickel oxide, copper oxide, manganese oxide, or chromium oxide. As a result of the high temperatures required for complete destruction, fuel costs can be expensive and fuel consumption can be considerable with oxidation units. To lower fuel usage, a RTO or RCO can be used to preheat contaminated process air in a heat recovery chamber. Control efficiencies for RTOs and RCOs range from approximately 70% to 95%. For the initial BACT analysis submitted by Holcim, 90% control efficiency was used for an RTO. RCO was considered technically infeasible and not considered in the BACT analysis. RCO technology would not be used for a cement kiln because the catalyst would likely be rapidly deactivated from the exposure to low levels of SO_2 and SO_3. In addition, a platinum/rhodium-based catalyst would also be rapidly deactivated by particulate emissions.

Initially, Holcim provided a capital cost of approximately $3.6 million for RTO to reduce CO emission levels from the kiln. Estimated annual operating costs were approximately $1.7 million for RTO with a cost effectiveness of approximately $6,096 per ton. The BACT analysis was conducted in accordance with information from the Office of Air Quality Planning and Standards Cost Control Manual, 5th Edition, February 1996 (OAQPS Manual). Additional research conducted by Holcim revealed additional cost will be necessary to pre-treat the kiln exhaust gas to reduce concentrations of SO_2 and particulate (i.e., a wet scrubber located upstream of the RTO). A RTO requires relatively low concentrations of SO_2 and particulate to function efficiently otherwise there will be considerable fouling and plugging of the RTO. Normally, the gas stream, using an RTO, would have very low particulate matter. Some metals and/or heavy dust loading may deactivate the catalyst, reduce heat recovery efficiency, and shorten the catalyst replacement interval reducing the availability of the RTO for the kiln. Installation and operation of the wet scrubber could also increase NO_x emissions at the facility. Based on a search of the EPA RACT/BACT/LAER Clearinghouse, no add-on BACT control for CO have been required at a cement kiln. Including the additional costs associated with the control equipment, Holcim provided a capital cost of approximately $6.5 million for RTO to reduce CO emission levels from the kiln. With the annual operating costs of

approximately $1.98 million for the RTO and an additional cost of $1.23 million for the scrubber, the cost effectiveness increased from approximately $6,096 (without additional scrubber control) to $13,506 per ton.

Using RTO and RCO will result in additional potential environmental and energy concerns such as additional fuel will be required to increase gas temperatures and spent catalyst are potentially toxic. In addition, the cost effectiveness of this technology will be greater than industry norms as a result of the overall high cost of the control technology. For these reasons, RTO and RCO do not constitute BACT for this project.

2. Proper Design and Combustion

Reduction of CO will be accomplished by controlling the combustion temperature, residence time, and available oxygen. Normal combustion practice at Holcim involves maximizing the heating efficiency of the fuel in an effort to minimize fuel usage. The efficiency of fuel combustion also minimizes CO formation.

B. HAPs BACT Analysis

1. Oxidation

Similar to CO, the general process of oxidation breaks down and destroys organic compounds (i.e., HAP) in the gas stream to form CO_2 and water vapor. In cement kiln operational variables such as temperature, residence time, and turbulence affect HAP control efficiency. The two potential methods of incineration to control HAP emissions are direct thermal oxidation and catalytic oxidation. Incinerators/oxidizers have the potential for high HAP control efficiency (up to 99%); however, this efficiency typically comes at the expense of increasing NO_x production. For the BACT analysis submitted by Holcim, 99% control efficiency was used for the RTO and RCO. A thermal incinerator operates at temperatures between 1,450°F and 1,600°F. Catalytic incineration is similar to thermal incineration; however, catalytic incineration allows for oxidation at temperatures ranging from 600°F to 1,000°F. Although cement kiln temperatures are greater than the temperatures required for RCO and RTO, the exhaust gas will be required to be routed through the ESP to prevent fouling and damaging of the oxidation unit. As the exhaust gas exits the ESP, the temperature will be approximately 325°F and additional fuel will be required to reheat the exhaust gas stream prior to entering the RTO or RCO.

The catalyst systems that are typically used include metal oxides such as nickel oxide, copper oxide, manganese oxide, or chromium oxide. Noble metals such as platinum and palladium may also be used as a catalyst. As a result of the high temperatures required for complete destruction, fuel costs can be expensive and fuel consumption can be considerable with oxidation units. To lower fuel usage, a RTO or RCO can be used to preheat contaminated process air in a heat recovery chamber. Energy recovery for RCOs and RTOs range from approximately 70% to 90%, respectively. Based on a search of the RACT/BACT/LAER Clearinghouse, no add-on BACT controls for HAPs have been required at a cement kiln. RTO and RCO technology will not likely be used exclusively for a cement kiln because the catalyst will be rapidly deactivated from the exposure to low levels of SO_2 and SO_3. In addition, a platinum/rhodium-based catalyst will also be rapidly deactivated by particulate emissions in the exhaust gas. Holcim provided a capital cost of approximately $3.6 million for RTO and $1.6 million for RCO. Annual operating costs were approximately $1.9 million for the RTO and $1.5 million for RCO with a removal cost effectiveness of approximately $253,191 per ton and $203,534 per ton, respectfully.

Using RTO and RCO technology will result in additional potential environmental and energy concerns such as additional fuel will be required to increase gas temperatures. Spent catalysts are also potentially toxic and subject to RCRA waste disposal regulations. In addition, the cost effectiveness of this technology will be greater than industry norms as a result of the overall high cost of the control technology. For these reasons, RTO and RCO do not constitute BACT for this project.

2. Adsorption

In addition to RTO and RCO, removal of low concentration HAP gases from an exhaust stream to the surface of a porous solid can be accomplished by an adsorption system. Gas adsorption can be used for a variety of industrial applications including control of volatile organic compounds. Adsorbents used in an adsorption system include activated carbon, alumina, silica get, and bauxite. Holcim's proposed adsorption system consisted of three carbon beds with two beds available for adsorbing and the third available for desorbing or on standby. A capital cost of the system is approximately $659,224 for a carbon adsorption system with an annual cost of approximately $410,870. Cost effectiveness for the system is approximately $56,284 per ton.

Additional potential environmental and energy impacts may include carbon disposal and additional energy required from pressure drop and steam production. Furthermore, the cost effectiveness of this technology will be greater than industry norms as a result of the overall high cost of the control technology. For these reasons, adsorption does not constitute BACT for this project.

3. Proper Design and Combustion

Reduction of HAPs in the kiln will be accomplished by controlling the combustion temperature, residence time, and available oxygen. Normal combustion practice at Holcim involves maximizing the heating efficiency of the fuel in an effort to minimize fuel usage. The efficiency of fuel combustion also minimizes HAP formation.

IV. Emission Inventory Summary - Permit #0982-11

A. Potential CO Kiln Emissions Increase from TDF

Criteria Pollutant	Potential Emission Rate (lb/hr)	Potential Emissions (ton/year)
CO	43.15	189

Note: Maximum clinker production is assumed to be 425,000 tons per 12-month period. Continuous operation is assumed to be 8760 hours per year.

B. Potential Kiln Emission including TDF

Pollutant	Emission Rates			
	lb/ton clinker	Lb/hr	g/sec	Tpy
PM_{10}	0.77	37.4	4.71	164
SO_2		124	15.6	543
NO_x		1,568	197.6	6868
CO	1.46	70.8	8.92	310
VOC	0.027	1.30	0.165	6
Lead	0.00071	0.034	0.004	0.15
Maximum clinker production is assumed to be 425,000 tons per 12-month period. Continuous operation is assumed to be 8760 hours per year.				

Emission Inventory Summary- Permit #0982-10

C. Potential Facility Particulate Emissions

Emission Inventory Summary	Ton/Year
Total potential particulate emissions	523

D. Potential Kiln HAP Emissions

Emission Inventory Summary	Ton/Year
Calculated potential HCl emissions	4.2
Calculated potential organic HAP emissions (VOC)	7.4
Calculated potential metal HAP emissions (1%PM)	5.2
Total calculated potential HAP emissions	**16.8**

Under Permit #0982-09, the Trident facility was designated as an area source for the purpose of determining the applicability of Portland Cement Maximum Achievable Control Technology (PC MACT). In order to qualify as an area source, emissions from an individual HAP cannot exceed 10 ton/year and the combined HAP emissions cannot exceed 25 ton/year.

E. Potential Non-Particulate Emissions Summary

	Ton/ Year	
Source	**NO_x**	**SO_x**
Cement Kiln	5,913	543

A complete particulate emissions inventory for the Trident facility is available, upon request, from the Department or available in Permit #0982-09.

V. Existing Air Quality

Holcim, Inc. (Holcim) operates the following equipment at the Trident facility located in the Northeast ¼ of Section 9, Southeast ¼ of Section 4, Southwest ¼ of Section 3, and Northwest ¼ of Section 10, Township 2 North, Range 2 East, approximately 5 miles northeast of Three Forks in Gallatin County, Montana. Ambient air quality modeling (AERMOD) submitted by Holcim and reviewed by the Department demonstrated that this facility would not cause or contribute to a violation of any ambient air quality standards. However, based on the most recent beta version of AERMOD (version #02222), a new hourly NO_x emission limit was necessary to show modeled compliance with the ambient air quality standards. Should future modeling (as reviewed by the Department) show that the new NO_x limit was not necessary to show modeled compliance with the ambient air quality standards, the Department determined that increasing the limit to a higher value would be appropriate.

In addition to criteria pollutants, the potential impacts from other hazardous air pollutants (i.e. constituent of potential concern (COPC)) for the proposed project were also addressed in a human health risk assessment. The human health risk assessment demonstrated that the proposed project would not be expected to result in an excess lifetime cancer risk or noncancer hazard that exceeds Montana's negligible risk and hazard standards for any individual chemical of concern, nor for the aggregate of the pollutants of concern.

VI. Taking or Damaging Implication Analysis

As required by 2-10-101 through 105, MCA, the Department conducted a private property taking and damaging assessment and determined there are no taking or damaging implications.

VII. Environmental Assessment

An environmental assessment, required by the Montana Environmental Policy Act, was completed for this project. A copy is attached.

DEPARTMENT OF ENVIRONMENTAL QUALITY
Permitting and Compliance Division
Air and Waste Management Bureau
1520 East Sixth Avenue
P.O. Box 200901, Helena, Montana 59620-0901
(406) 444-3490

DRAFT ENVIRONMENTAL ASSESSMENT (EA) and FINAL SOLID WASTE EA

Issued For: Holcim (US) Inc.
Trident Plant
4070 Trident Road
Three Forks, MT 59752

Permit Number: 0982-11

Preliminary Determination on Permit Issued: 03/24/03
Department Decision Issued:
Permit Final:

1. Legal Description of Site: The Holcim (US) Inc. (Holcim) Trident facility is located near the Missouri Headwaters approximately 5 miles northeast of Three Forks, Montana. The legal description of the site is in the Northeast ¼ of Section 9, Southeast ¼ of Section 4, Southwest ¼ of Section 3 and Northwest ¼ of Section 10, Township 2 North, and Range 2 East in Gallatin County.

2. Description of Project: The proposed air quality permit application requested the mid-kiln combustion of whole waste tires to supplement up to 15% (on a British Thermal Unit (Btu) basis) of the required fuel for the kiln. Holcim anticipates that approximately one whole waste tire per revolution of the kiln (or approximately 657,000 tires per year) would be combusted in the kiln. However, the permit allows Holcim to combust tires consisting of up to 15% of the total fuel heat input (or 1,137,539 tires annually). In order for the tires to be inserted into the kiln, a mid-kiln injection system (i.e., gate) would be installed into the kiln shell. Holcim is currently authorized to combust up to 100% natural gas, up to 100% coal, up to 100% petroleum coke, or any combination of these fuels.

   Scrap or waste tires are identified as a solid waste under Montana Code Annotated (MCA) 75-2-103(16)(a) and solid waste incineration of tires must follow the requirements defined under MCA 75-2-215. Under these requirements, Holcim must demonstrate that impacts from the project would constitute no more than a negligible risk to the public health, safety, and welfare, and to the environment. In addition, because Holcim would collect and store waste tires, this facility would be considered a Class III Resource Recovery facility under the Montana Solid Waste Act. Therefore, along with applicable potential air quality impacts, this EA addresses environmental issues related to the application for the Holcim tire resource recovery facility in which Holcim proposes to store waste tires in the old limestone quarry prior to incineration. The facility is not accessible to the general public, and contractors or Holcim employees would transport all tires to the facility.

3. **Objectives of Project:** The primary objective of this project is to provide lower operating costs and increase operational flexibility at the Trident facility. In addition, the proposal would provide an opportunity to use tires as a fuel source, which would reduce the volume of tires that would be sent to landfills.

4. **Alternatives Considered:** In addition to the proposed action, the Department of Environmental Quality (Department) also considered the "no action" alternative. Under the "no action" alternative, the Department would deny the air quality preconstruction permit and/or not license the site as a tire resource recovery facility and none of the impacts discussed in this EA would occur. If the facility were not licensed for resource recovery, waste tires would continue to be disposed of at their current location, or the applicant could apply for a license at another location. However, because Holcim demonstrated that the proposed action would comply with all applicable rules and regulations as required for permit issuance, the Department eliminated the "no-action" alternative from further consideration.

5. **A Listing of Mitigation, Stipulations, and Other Controls:** A list of enforceable permit conditions and a complete permit analysis would be contained in Montana Air Quality Permit #0982-11. In addition, Holcim would be required to provide financial assurance sufficient to cover the cost of removing and disposing of the maximum tires that would be on the site as well as financial assurance sufficient to cover the cost of extinguishing a tire fire at the facility. Berms would be required to contain the potential volume of liquid that would be produced from a tire fire that burned the maximum number of tires at the site at any given time. Fifty-feet wide fire lanes would be required between each row of trailers and the fire lanes and general area in the vicinity of the trailers would be required to be kept free of vegetation.

6. **Regulatory Effects on Private Property:** The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions are reasonably necessary to ensure compliance with applicable requirements, demonstrate compliance with those requirements, and that these conditions do not unduly restrict private property rights.

7. **The following table summarizes the potential physical and biological effects of the proposed project on the human environment.** The "no-action alternative" was discussed previously.

Potential Physical and Biological Effects							
		Major	**Moderate**	**Minor**	**None**	**Unknown**	**Comments Included**
A	Terrestrial and Aquatic Life and Habitats			√			Yes
B	Water Quality, Quantity, and Distribution			√			Yes
C	Geology and Soil Quality, Stability, and Moisture			√			Yes
D	Vegetation Cover, Quantity, and Quality			√			Yes
E	Aesthetics			√			Yes
F	Air Quality			√			Yes
G	Unique Endangered, Fragile, or Limited Environmental Resource			√			Yes
H	Demands on Environmental Resource of Water, Air, and Energy			√			Yes
I	Historical and Archaeological Sites				√		Yes
J	Cumulative and Secondary Impacts			√			Yes

SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS:
The following comments have been prepared by the Department.

A. **Terrestrial and Aquatic Life and Habitats**

Potential impacts on terrestrial and aquatic life and habitats would be minor because of the very minimal land disturbance caused as a result of the proposed project, minimal operational and/or physical modifications to the facility, and minor impact to the surrounding area from the air emissions (considering the area air dispersion characteristics) associated with the project. Land disturbance would consist primarily of the installation of a waste tire conveyer system to deliver the tires to the kiln for combustion and a waste tire storage area located on the previously disturbed industrial area/mine quarry floor. Both would have a very minor impact, if any, on the on-site terrestrial and aquatic life habitats. Onsite waste tires would be stored in covered trailers to minimize rodent and insect infestation. Modification to the facility would involve the installation of a gate in the kiln shell that would provide the ability for tires to be dropped into the kiln for use as fuel. The modification would require additional equipment and specialized personnel but the overall construction impacts would be temporary and would have a minimal impact to the terrestrial and aquatic life and habitats. The Trident facility is located in an active existing industrial/mining area. The surrounding area is currently used for farming, ranching, livestock grazing, rangeland, and recreation. Terrestrials (i.e., cattle, deer, elk, rodents, and bear) near the Holcim facility would use the area for food and water while the adjacent Missouri River would provide habitat for various forms of aquatic life. A portion of the Holcim property is fenced, limiting access of terrestrials to the main manufacturing and storage area, but the fence would not likely restrict access to the site.

Results of the air dispersion modeling (See Section 7.F of this EA) performed for the criteria pollutant air emissions (i.e., oxides of nitrogen (NOx), carbon monoxide (CO), particulate matter with an aerodynamic diameter less than 10 microns (PM_{10}), ozone (O_3), and sulfur dioxide (SO_2)) indicated that the impacts on the local terrain would be minor and would not exceed the Montana Ambient Air Quality Standards (MAAQS) or National Ambient Air Quality Standards (NAAQS). The MAAQS and NAAQS were established to protect both the primary and secondary standards. Primary standards set limits to protect public health, including, but not limited to, the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards, on the other hand, set limits to protect public welfare, including, but not limited to, protection against decreased visibility, damage to animals, crops, vegetation, and buildings. The secondary standards are designed to protect the public welfare (including animals) from the emission of criteria pollutants. The proposed project would comply with the secondary standards. Furthermore, emissions of hazardous air pollutants (HAP) were evaluated in the human health risk assessment required under MCA 75-2-215 and the Administrative Rules of Montana (ARM) 17.8.706(5) to assess the impacts from the proposal on human health. The proposed project would pose no more than a negligible risk to human health.

In addition to the human health risk assessment, a Screening Level Ecological Risk Assessment was completed by Holcim (submitted to the Department on October 23, 2002, and revised November 15, 2002, February 12, 2003, and March 17, 2003) to predict the potential impact of the change in HAPs related to the proposed project on ecological communities in the vicinity of the Trident plant. Exposure data for the screening level ecological risk assessment were based on HAP emission results and air dispersion modeling results used in the human health risk assessment. In general, screening level ecological risk assessments are conducted to evaluate whether or not there is a need for a more detailed site-specific baseline ecological risk assessment. A screening level ecological risk assessment provides a high level of confidence that an unacceptable hazard to ecological communities (hazard quotient of 1.0 or greater) would not be overlooked. Overall, screening level ecological risk assessments apply ecologically conservative and protective assumptions that overestimate the true risk to the local ecosystem.

Routes of exposure that were considered for ecological exposure included inhalation of COPC in ambient air; uptake into plants through roots and leaves; ingestion of chemicals from soils and food or prey; ingestion of chemicals from surface water; and direct dermal contact with COPC in surface water. The potential hazard was modeled for each representative species. Species (juniper, rabbit, red fox, red-tailed hawk, fish, worms, songbirds, benthic invertebrates, and aquatic macro invertebrates) were selected to represent the five functional groups (plants, herbivorous and carnivorous mammals, birds, and aquatic biota) found in the area. Selections were made based on discussions with Donald Skaar of the Montana Department of Fish, Wildlife, and Parks, and the personal experiences of Bison/Holcim personnel, who have observed one or more of these species near the facility. For each species, the sum of all exposure pathways was calculated to determine the hazard index. Hazard indices less than 1.0 indicate that the change in exposure under the conditions evaluated is unlikely to pose an unacceptable hazard to ecological receptors. The hazard index calculated for each species evaluated in the screening level ecological risk assessment was less than 1.0. Based on the highly conservative exposure assumptions and the results of the hazard index analysis, additional examination of potential ecological effects from the proposed project is not necessary and the likelihood of adverse effects would be low.

B. **Water Quality, Quantity, and Distribution**

The proposed project would result in minor impacts to water quality, quantity, and distribution in the vicinity of the Trident plant because the on-site physical disturbances would be small, the air emissions would have only minor impacts to the surrounding waterways, and the project would not result in any surface or groundwater discharges. The Department determined that the criteria pollutant air emissions would be in compliance with the NAAQS and MAAQS; the human health risk assessment demonstrated compliance with Montana's negligible risk standards for COPC; the results of the screening level ecological risk assessment demonstrated that the potential ecological impacts of COPC would be minimal; the predicted water concentrations from aerial deposition of the COPC would be below Montana's Numeric Water Quality Standards set to protect aquatic life and human health; the use of additional water for onsite road dust suppression or other uses would be very minor (if any); and this project would not discharge any type of additional waste effluent or water to any surface water drainage system, local groundwater aquifer, or alter the course or magnitude of groundwater or any surface water drainage system.

As described in Section 7.F of this EA, based on the emission modeling and considering local dispersion characteristics such as wind speed, wind direction, atmospheric stability, and stack temperature, the facility would be in compliance with both the primary and secondary NAAQS and MAAQS as a result of this proposed project. Secondary standards were specifically designed to protect the public welfare, including potential impacts to water resources. Furthermore, a human health risk assessment and a screening level ecological risk assessment were performed to address potential impacts of other COPC (i.e. hazardous air pollutants) associated with the proposed project. The human health risk assessment (Refer to Section 7.F.) demonstrated that the proposed project would constitute no more than a negligible risk (as defined in ARM 17.8.740(10)) to the public health, safety, and welfare and to the environment. Various adult and child exposure pathways were evaluated and incorporated in the human health risk assessment, including the ingestion of surface water. Likewise, a portion of the screening level ecological risk assessment evaluated the potential impact to aquatic species (i.e., fish and benthic invertebrates). The overall hazard index for the aquatic biota was less than 1.0, and the change in concentrations for COPC would not be expected to exceed the EPA water quality benchmarks for freshwater aquatic biota. Thus, the screening level ecological evaluation indicated that the potential change in exposure from air emissions from this project would not likely pose an unacceptable ecological hazard to aquatic biota. In addition, a comparison of the predicted impact to the Missouri River from aerial deposition using the maximum predicted concentration at a receptor (from the air dispersion modeling) was compared to Montana's Numeric Water Quality Standards. The rate of air deposition was converted into water concentrations based on a representative surface area of the

river and an estimate of the number of volume changes per year. Results demonstrated that the predicted change in water quality concentrations from the air emissions would be significantly below Montana's Numeric Water Quality Standards.

Onsite waste tires would be stored on previously disturbed industrial/mining terrain in enclosed containers designed for safe tire storage and low fire potential. Therefore, water would not be impacted by the on-site storage of tires. A very minor amount of additional water may be necessary for onsite road dust suppression. Holcim would not discharge any waste effluent or water to any surface water drainage system, local groundwater aquifer, or alter the course or magnitude of groundwater or any surface water drainage system as a result of this project. Therefore, the proposed project would result in no more than minor impacts to water quality, quantity, and distribution.

C. **Geology and Soil Quality, Stability, and Moisture**

Potential impacts to local geology and soil quality, stability, and moisture from this project would be minor because the project would impact a relatively limited portion of previously disturbed property at the Trident plant and the amount of deposition of air emissions resulting from this project would be minimal. Waste tires would be transported via truck and stored onsite prior to being transported to the tire conveyor system for insertion into the kiln. The tire conveyer system and the tire storage area would be located on previously disturbed land and/or the quarry floor at the plant. Onsite waste tires would be stored in covered storage to minimize potential fire hazards and rodent or insect infestation. Trucks and/or rail would be used to transport tires to the plant, but the impacts within the plant area would be of short time duration and limited primarily to paved roadways and rail. Any on-site unpaved roads would be sprayed with water, as necessary to minimize fugitive emissions. Thus effects on soil moisture would be minor. The project also would not result in the discharge of any waste/water effluent to the local soil or waterways.

A portion of the air emissions related to the project would impact local soils, but that impact (deposition) to geology and soil quality, stability, and moisture would be minor because of the air dispersion of the pollutants. The Department determined that the proposed project demonstrated compliance with the NAAQS and MAAQS, the human health risk assessment demonstrated compliance with Montana's negligible risk requirements, the screening level ecological risk assessment confirmed that an exposure would not likely pose an unacceptable hazard to ecological receptors in the vicinity of the Trident Plant, and the air emissions associated with the project would not change the physical characteristics of the local soil. Negligible risks were identified from the change in exposure to affected soils in the human health risk assessment and screening level ecological risk assessment. Likewise, impacts to the geology and soil quality, stability, and moisture associated with the construction of the kiln gate, tire conveyor system, or other miscellaneous activities at the plant would be minor because the disturbance for the activities would be within a current industrial location, the activities would be very minor and temporary, and the activities would not change the overall soil characteristics of the area.

D. **Vegetation Cover, Quantity, and Quality**

Potential impacts on the vegetation cover, quantity, and quality from the proposed project would be minor in the immediate area of the Trident plant because the project (i.e., handling and combustion of waste tires) would occur on previously disturbed industrial terrain and the resulting deposition from air emissions associated with the project would be relatively minimal. As described in Section 7.F of this EA, the modeled air quality impacts of the air emissions from the kiln would be in compliance with both the primary and secondary NAAQS and MAAQS. Secondary standards were designed to protect public welfare including protection against damage to vegetation. In addition, the potential effects of vegetation consumption on the local human health and ecology were addressed in the human health risk assessment and screening level ecological risk assessment.

Results of the human health risk assessment demonstrated that the impacts from the proposed project (including the potential ingestion of vegetation) would not result in a change in the excess lifetime cancer risk or non-cancer hazard that exceeds Montana's negligible risk standard for any individual chemical of concern, nor for the aggregate of the pollutants of concern. Likewise, the screening level ecological risk assessment indicated that exposure from the change in air emissions associated with the proposed project on local vegetation would not likely pose an unacceptable hazard to ecological receptors in the vicinity of the Trident Plant. The representative native plant species selected in the area was the juniper plant because of its availability and long growing season. However, toxicity reference values reported for the juniper are not species-specific, but represent data compiled by the EPA from toxicity tests on a variety of vegetation, including grasses, forbs, and some shrubs. The juniper was selected to represent vegetation on site and the various plant communities from which these data were drawn. Consequently, consideration of grasses and other herbaceous species, which may be more sensitive or ecologically valuable, was included. The potential hazard for plants (i.e. the juniper plant) was evaluated by comparing the modeled change in average soil concentration to appropriate soil phytotoxicity benchmarks. Based on the results of the screening level ecological risk assessment, the hazard index for the juniper plant was less than 1.0 (1.35E-01), which indicated that the adverse impacts from changing fuels would be low. Hazard indices of less than 1.0 indicate that the potential exposure from this proposed project would be unlikely to pose an unacceptable hazard to ecological receptors.

The potential impact to organic farms near the Trident Plant was evaluated based on the availability of both federal and/or Montana organic farming standards for chemicals in soil and water. Doug Crabtree of the Montana Department of Agriculture indicated that Montana plans to adopt the federal organic farming program for certifying and supervising organic farms and farm products, but Montana has not developed organic farming standards. Keith Jones, Director of Program Development, National Organic Program (NOP), U.S. Department of Agriculture (USDA) indicated that neither the NOP nor the USDA have developed organic farming standards for metals or organics in soil or water. The level that constitutes unavoidable residual environmental contamination in the new federal organic farming standards (Section 205.671) is 5% of the EPA tolerance level or the Food and Drug Administration (FDA) action level; however, the EPA and FDA levels apply to pesticides, not the COPC evaluated in the human health risk assessment. The human health risk assessment evaluated risks from the food pathway at the highest exposure point, which is located on the property boundary. Predicted risk from food ingestion was much less than the inhalation pathway, and all risks were negligible. Therefore, based on the overall conservative approach of the human health risk assessment and the screening level ecological risk assessment and the distance between the organic farms and the facility (Clarkston Area Farms ≈ 10 miles and Wheat Montana ≈ 10 miles), the impacts to the vegetative cover, quantity, and quality would be very minor and the effects on the organic farming certification requirements or standards would also be minor.

E. **Aesthetics**

Impacts from the proposed project on the area aesthetics would be minor because the physical and operational modifications to the Trident facility would be minimal, and the modifications would occur in a previously disturbed industrial/mining area. Raw materials used in the cement making process at the Trident plant are mined from an onsite quarry located just southwest and adjacent to the facility. Because industrial and mining related activities and building structures associated with the manufacturing of the cement are located within the plant boundary, the additional noise from the proposed project would be relatively small compared to onsite sources and activities that would be associated with the production of cement.

Cement production at the Trident facility would continue to include onsite activities such as raw material blasting from the onsite quarry and raw material truck loading for transport to the primary crusher or to onsite stockpiles. From the primary crusher, the raw materials would continue to be conveyed to storage bins. From the storage bins, the raw materials would continue to be conveyed to the ball mill for grinding with water to form slurry prior to being sent to storage tanks for use in the 450-feet long, 12 to 14 feet diameter, rotary kiln for high temperature (greater than 2000 °F) processing into clinker. As clinker leaves the kiln, it would continue to be cooled and transported to clinker bins or outside storage. From the storage bins or outside storage sites, the product would continue to go to the finish mills for processing and grinding into Portland cement, which is eventually loaded into onsite railroad cars or trucks for distribution to customers. The addition of tires to the fuel mixture for Holcim would result in only minor impacts to the aesthetics of the facility, primarily the addition of covered storage containers for the tires.

Additional noise from this project would primarily result from transporting the waste tires to the kiln (via a conveyor system) for combustion and from additional vehicle traffic that would transport the waste tires to the facility. The proposed tire conveyor system and associated equipment would be located inside the property boundary primarily on the south side of the kiln to minimize noise and visual impacts to the surrounding area (i.e., Missouri River). Vehicle traffic associated with these activities would primarily use existing paved and non-paved roads. The amount of vehicle activity in the area would not increase substantially over the existing traffic. Visible emissions from the tire conveyer and onsite roads would be limited to 20% opacity. The tires (for fuel) stored on site would be contained in covered storage.

The facility is located approximately 5 miles northeast of the town of Three Forks near the headwaters of the Missouri River. The area surrounding the Trident facility is currently used for a variety of activities such as farming, ranching, livestock grazing, rangeland, and recreation. Although some limited onsite housing is available to employees, the distance to the nearest offsite residence is approximately 1 mile east of the Trident Plant. Activities associated with the construction and operation of the proposed project may be partially visible from various locations in the general area including State Secondary Route 286, approximately 500 feet to the north, the Missouri River approximately 1,000 feet to the north, and the county road approximately 600 feet east of the project area. However, based on the visibility of the current structures within the plant area and local topography, the impact on aesthetics from the proposed project (i.e., conveyors, kiln gate, storage trailers) would be minor. Other structures and equipment currently visible in the plant area include crushers, conveyors, screens, raw material storage piles, storage silos, a 450-foot long (12 to 14 foot diameter) rotary kiln, 130 foot high (10 foot diameter) stack, pollution control equipment, railcars, railroad grade, dump trucks, railcars, feed tanks, industrial buildings, office buildings, electrical power poles, electric power lines, etc. The proposed project would have minor impacts on aesthetics because the activities associated with this project would not likely be visible to the public because of the relative remote location of the facility and the industrial operations already occurring at the site.

F. Air Quality

The proposed use of waste tires as a supplemental fuel source for up to 15% of the total heat input in the kiln would result in minor air quality impacts because, with the exception of CO, the projected increase in criteria air pollutants would be minimal; the projected change in air emissions would not cause an exceedance of the Primary or Secondary NAAQS or MAAQS; and the projected change in COPC (i.e., HAP emissions) have been modeled to demonstrate compliance with Montana's negligible risk standard. As shown on Table F-1 from a criteria pollutant emissions analysis submitted to the Department on December 21, 2000, by Holcim, NO_x, SO_2, particulate matter (PM), total hydrocarbons (THC), and lead (Pb) would not likely increase from the use of tire-derived fuel (TDF). Emission data summarized in Table F-1 were collected from 11 other cement-manufacturing facilities located throughout the United States. Based on emissions

information from other facilities, CO was identified as having the potential to increase above Prevention of Significant Deterioration (PSD) significant levels (or greater than 100 tons/year) as a result of this project. The potential increase in CO was estimated at 189 tons per year.

Table F-1. Criteria Pollutants - TDF Emission Data Summary (except CO)

Average Data	Pollutant Emissions (lb/ton clinker)														
	NO_x			SO_2			PM			THC			Pb		
	W/o TDF	with TDF	%Δ	w/o TDF	With TDF	%Δ	w/o TDF	With TDF	%Δ	W/o TDF	With TDF	%Δ	W/o TDF	With TDF	%Δ
All Kilns	7.32	5.67	-23%	5.29	4.35	-18%	0.33	0.27	-17%	0.68	0.66	-3%	7.32E-04	3.58E-04	-51%
All Dry Kilns	4.32	3.26	-25%	2.37	2.84	20%	0.18	0.19	6%	0.35	0.32	-10%	8.56E-04	3.86E-04	-55%
All Wet Kilns	11.81	9.28	-21%	9.68	6.62	-32%	0.55	0.40	-29%	1.51	1.51	0%	4.85E-04	3.01E-04	-38%
Whole Tires at Mid-kiln	10.60	7.51	-29%	2.21	2.25	2%	0.54	0.55	2%	0.36	0.31	-13%	1.36E-03	6.39E-04	-53%
Coal and Coke Baseline	12.00	10.20	-15%	12.8	9.46	-26%	1.09	0.533	-51%	NA	NA	NA	2.46E-04	1.78E-04	-28%
Coal Baseline	4.26	3.43	-19%	3.64	3.24	-11%	0.18	0.20	13%	0.56	0.51	-8%	8.56E-04	3.86E-04	-55%

Note: Information taken from Holcim's January 31, 2002, submittal.

Holcim submitted air quality dispersion modeling, which factors in various parameters such as local wind speed, wind direction, atmospheric stability, stack temperature, and stack emissions. The modeling results demonstrated that the emission impacts of criteria pollutants from the proposed project would be below the NAAQS and MAAQS. All criteria pollutants were evaluated in the analysis including CO, Pb, NO_2, ozone (as volatile organic compounds (VOC)), SO_2, and PM_{10}. The AERMOD dispersion model (beta version #01247) was used for the air quality analysis for this project. Although AERMOD is not currently identified in the EPA Guidance Document as an approved model, the April 21, 2000, *Federal Register* contains a proposed rule that when adopted will make AERMOD the preferred air dispersion model. The Department approved the use of AERMOD as part of the initial application review. Since the Department's initial approval for Holcim to use the AERMOD model, AERMOD has been revised (beta version #02222). The Department agreed with Holcim that the initial model approved (beta version #01247) should continue to be used with the CKD emission sources to maintain consistency with earlier modeling. However, the Department requested that Holcim conduct additional modeling using the new beta version of AERMOD to make sure that the facility would comply with ambient air quality standards. An hourly NO_x emission limit would be added to the permit to ensure modeled compliance with the ambient air quality standards.

AERMOD is more advanced and allows for more accurate estimates of pollutant concentrations in complex terrain than previous models. AERMOD is also designed to accept input data prepared by two specific pre-processor programs (AERMET and AERMAP). The air dispersion modeling analyses were conducted using onsite meteorological data collected from April 1, 2000, through March 31, 2001, along with cloud cover and upper air data for the same time period from the Great Falls, Montana International Airport NWS Station. The Great Falls upper air data was used because that is the closest and most representative upper air data for the Trident area. The terrain data processed by AERMAP for use in AERMOD included 1:24,000 digital elevation model (DEM) files using the Logan and Three Forks quadrangles from the United States Geological Survey (USGS). For the analysis, two receptor systems were developed. The preliminary system varied in coarseness from 100 meter to 1,000 meter spacing and was used to identify the hotspots. A finer grid was also developed with 50-meter spacing that extended approximately 200 meters on either side of the hotspot(s) identified by the preliminary modeling.

In order to determine compliance with air quality standards, emission rate model inputs were compiled for PM_{10}, SO_2, NO_x, CO, VOC, and Pb based on the previous operational limitations placed in Permit #0982-10, facility source test data, and AP-42 emission factors (Note: AP-42 is an

EPA supported database with air pollutant emissions factors for various sources including cement kilns). Table F-2 provides the emission rates used in the modeling analysis. Compared to baseline conditions, CO would be the only criteria pollutant that would increase.

Table F-2. Emission Rates for Holcim Trident Facility

Pollutant	Emission Rates			
	lb/ton clinker	lb/hr	g/sec	Tpy
PM_{10}	0.77	37.4	4.71	164
SO_2		124	15.6	543
NO_x		1,568	197.6	6868
CO	1.46	70.8	8.92	310
VOC	0.027	1.30	0.165	6
Lead	0.00071	0.034	0.004	0.15
Maximum clinker production is assumed to be 425,000 tons per 12-month period. Continuous operation assumed (8760 hours per year).				

Note: Information taken from Holcim's May 31, 2002, submittal.

In order to obtain the predicted concentration for each criteria pollutant and compare it with the MAAQS and NAAQS, the predicted highest or second highest predicted concentrations were added to the estimated background concentrations. For the modeling analysis, the Department Guidance Statement, dated May 19, 1992, was used for background pollutant concentrations. A single emission rate (i.e., one gram per second) was modeled to establish predicted concentration values at key receptors in terms of that base emission rate. Criteria pollutant concentrations at those key receptors were then determined based on their estimated emission rate. The Department independently reviewed and approved the air dispersion modeling analysis provided by Holcim. Table 3 provides the modeled predicted concentration as well as the total concentration from the Holcim facility for the various criteria pollutants and identifies the MAAQS and the NAAQS for comparison. In order to obtain a more realistic predicted concentration of atmospheric NO_2, the Ozone Limiting Method (OLM) was used for the 1-hour MAAQS. The ambient concentration of ozone in the OLM analysis was obtained from data collected at Holcim's Devil's Slide Plant in Morgan, Utah because no comparable data was available from Montana. Based on the results of the modeling analysis provided in Table F-3, the proposed project would not cause or contribute to a violation of the NAAQS or MAAQS.

Table F-3. Predicted Concentrations Compared to Ambient Standards

Pollutant	Averaging Period	Predicted Concentration ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	MAAQS ($\mu g/m^3$)
CO	1-hour H2H	182	1725	1,907	40,000	26,450
	8-hour H2H	48	1150	1198	10,000	10,350
NO_2	1-hour H2H	4030	75	555[a]	None	564
	Annual	91	6	74	100	94
Lead	Monthly	0.058	Not available	0.058	1.5	1.5
	Quarterly	0.0030	Not available	0.0030	None	1.5
PM_{10}	24-hr H2H	15	30	45	150	150
	Annual	2	8	10	50	50
SO_2	1-hour H10H	209	35	244[c]	None	1300
	3-hour H2H	159	26	185	1300	None
	24-hour H2H	48	11	59	365	262
	Annual	7	3	10	80	52
Ozone as VOC	1-hour H2H	3	80[d]	83	235	196
	8-hour H2H	0.9	80[d]	81	None	157

[a] Based on ozone limiting method.
[b] Based on ambient ratio method.
[c] Modeled high 10th high Standard is not to be exceeded more than eighteen times in twelve months.
[d] Based on Holcim's Devil's Slide facility located near Salt Lake City.

Note: General information taken from Holcim's May 31, 2002, submittal.

In addition to the above described air quality analysis for criteria pollutants (PM_{10}, SO_2, NO_x, CO, VOC, and Pb), other potential air pollutant emissions (i.e. HAPs) associated with the project were evaluated in the human health risk assessment. The purpose of the human health risk assessment was to scientifically evaluate the change in potential carcinogenic and non-carcinogenic hazards that would be attributed to the proposed project under normal and upset operating conditions of the kiln. Normal kiln operating conditions were defined as the time when the pollution control equipment such as the electrostatic precipitator (ESP) was operating. Upset operating conditions at the facility were defined as the periods of time when the ESP was offline (or bypassed) to prevent potential explosions or fire. Both the normal and upset emission exposure scenarios were evaluated in the risk assessment.

In order to provide an estimate of human health risk during an upset exposure scenario, some general assumptions were necessary including: 1.) A facility upset caused the ESP to be taken offline resulting in uncontrolled emissions of particulate HAPs. 2.) Duration of an upset was estimated based on upset data collected in 2000 and 2001. 3.) Kiln temperature remained sufficiently elevated during an upset such that HAPs emissions were unchanged. 4.) Only particulate-based HAP concentrations changed during an upset (Gaseous HAP concentrations were identical to that evaluated in the acute risk assessment). From literature searches and Holcim's professional experience, particulate HAPs controlled by the ESP include mercury, antimony, lead, cadmium, selenium, zinc, chromium, arsenic, nickel, manganese, hydrogen chloride, hydrogen fluoride, dioxins, and furans. With the exception of mercury, all of the previously listed metal HAPs were assumed to be in particulate form. Based on Holcim experience, the ESP would collect approximately 5% of the mercury, hydrogen chloride, and hydrogen fluoride gaseous emissions. Based on a literature reference, dioxins/furans were assumed to be 20% particulate and 80% gaseous.

In the risk assessment for normal operating conditions, exposure pathways that were evaluated included inhalation, soil ingestion, water ingestion, dermal contact, consumption of beef, poultry, pigs, goat/sheep, and fish; root, vine, and leaf produce; milk and eggs; and mothers milk. For the upset operating scenario, only the inhalation exposure pathway was evaluated because the acute duration exposures would be significantly greater than dermal contact, water or soil ingestion, or food consumption. Human exposure to chemicals of concern (i.e., HAPs) was quantified by using algorithms published in 1993 by the California Air Pollution Control Officers Association (CAPCOA) in consultation with the Office of Environmental Health Hazard Assessment (OEHHA) of the California Air Resources Board (CARB). Additional information and assumptions relating to the risk assessment are available in the original October 3, 2001, permit application and subsequent deficiency letter responses submitted to the Department by Holcim.

Human health risks calculated from the risk assessment for the project were compared to Montana's negligible risk standard described in ARM 17.8.740(10). In order to meet the negligible risk standard, there cannot be an increase in excess lifetime cancer risk (incremental increased risk for cancer that is associated with exposure from the proposed project) of more than 1.0×10^{-6} for any individual pollutant or 1.0×10^{-5} for the aggregate of all pollutants. Also, there cannot be an increase in the sum of the non-cancer hazard quotients of 1.0 or more as determined by the risk assessment. The cancer risk is expressed as a probability that an adverse health impact may occur because of an exposure to COPC. The hazard quotient is the ratio of the exposed concentration to a concentration at which symptoms of toxicity may begin to occur. Hazard quotients less than 1.0 indicate that exposure is below a level that would cause a toxic effect. Various categories of COPC were identified and included in the risk assessment such as polychlorinated dibenzo(p)dioxins (PCDD), polychlorinated dibenzofurans (PCDF), polynuclear aromatic hydrocarbons (PAH), and metals.

In order to identify the COPC associated with the combustion of tires at the Trident facility, Holcim gathered previously published emission source test data from stack testing at other cement kilns across the United States. Although numerous other cement-manufacturing facilities use tires as a fuel for their kilns, source test data similar to the Trident plant (i.e., wet process kiln) was limited, especially HAPs source test data. With the purpose of obtaining a more extensive data set, emission test results from a variety of cement manufacturing plants (e.g. both wet and dry kiln types) were considered in estimating the change in HAP emissions from the Trident plant. Because the kiln size is related to the amount of fuel required for processing the raw materials, the projected emissions were scaled based on the percentage of the overall heat input of the kilns. A total of 13 data sets comparing the change in emissions related to the use of tire-derived fuel were evaluated in the risk assessment. From the data available from the 13 facilities, either the maximum projected emission value or a 95 percent upper confidence level was used to predict changes in emissions related to the burning of tires at the Trident plant. Once the predicted change in HAP stack emissions from the Trident kiln were estimated, air dispersion modeling was completed to predict ground level concentrations of air pollutants. The risk assessment used the ground level concentrations to predict human and ecological exposure through inhalation, dermal contact, and ingestion exposure routes. These exposure concentrations were compared with toxicity values to calculate the risks associated with the use of tires as a fuel for the kiln. The risk assessment was performed in accordance with generally accepted risk assessment procedures developed by the U.S. EPA and the California Control Officers Association.

In air dispersion modeling submitted by Holcim, receptor grids were created to predict area wide peak impacts. Specific impact areas of interest covered by the receptor grid included the Missouri River; Missouri River Headwaters State Park; Trident Housing located within the plant property boundary; the nearest off-site residence, roadways, and Three Forks High School. Using the EPA model AERMOD, the receptor system was varied from 100-meter to 1,000-meter spacing to identify the hotspots. A finer grid was developed with 50-meter spacing that extended approximately 200 meters on either side of each hotspot identified by the preliminary modeling. A single emission rate (i.e., one gram per second) was modeled to establish predicted concentration values at key receptors in terms of that base emission rate. COPC concentrations at those key receptors were then determined based on their estimated emission rate. The maximum annual and maximum 1-hour model-predicted concentrations using AERMOD were 0.46 micrograms per cubic meter per gram per second ($\mu g/m^3/g/sec$) and 27.50 $\mu g/m^3/g/sec$, respectively and were located at the northeast property boundary. For the purpose of providing an estimate of the human health risk under normal operating conditions, the chronic exposures for each COPC were based on the annual predicted concentration of 0.46 $\mu g/m^3/g/sec$ and the short term or acute duration exposures were based on the average 1-hour concentration of 27.50 $\mu g/m^3/g/sec$. Under upset operating conditions, the exposure risk calculations for each COPC were also based on the first high model results of 27.50 $\mu g/m^3/g/sec$. The "first high" model result is the highest predicted one hour impact of all one-hour intervals evaluated. The use of maximum predicted annual average concentration for the long-term, chronic exposure scenario and the one-hour concentrations for short-term exposures associated with the acute exposure scenario and the upset exposure scenario ensures that the overall results generated from the risk assessment are conservative and demonstrate protection of human health.

The risk assessment for this project evaluated a hypothetical, future residential exposure scenario at the point of highest exposure along the Holcim property boundary. The exposure concentration was based on the maximum projected change in HAP emission rate under normal operating conditions using AERMOD. Based on this conservative exposure scenario, this project would not exceed Montana's negligible risk standard because the increase in excess lifetime cancer risk would be less than 1.0×10^{-6} for any individual pollutant and less than 1.0×10^{-5} for the aggregate of all pollutants. Also, the sum of the non-cancer hazard quotients would be less than 1.0. Results from the risk assessment for the long-term, chronic exposure scenario under normal operating conditions

estimated the highest potential change in cancer risk at the maximum impact receptor for an individual pollutant would be 8.6×10^{-7} for formaldehyde and the aggregate of all pollutants would be 1.2×10^{-6}. The sum of the non-cancer hazard quotient would be 0.48. For the short-term upset exposure scenario, the risk analysis demonstrated that the change in 1-hour ground level concentrations would not result in risks that exceed the non-cancer hazard quotient of 1.0 or the acute reference exposure levels (REL) developed by the California Environmental Protection Agency (CalEPA) Office of Environmental Health Hazard Assessment (OEHHA). The concentration levels at or below which no adverse health effects are anticipated for a specific exposure duration is termed the REL. The average upset duration from data collected for the years 2000 and 2001 was approximately 13.2 minutes. The non-cancer hazard quotient for an estimated upset duration of 30 minutes would be 0.302, which is below Montana's negligible risk standard of 1.0. To be conservative, the injection of tires into the kiln would be required to be discontinued if an upset condition lasts 15 minutes or more.

In addition to meeting Montana's negligible risk requirements, the projected change in the amount of HAP emissions would be relatively small for the proposed project. Criteria pollutants as well as non-criteria pollutants (i.e. HAPs) are emitted from the combustion of fossil fuels. The Trident facility is currently permitted to use various fuels such as coal, petroleum coke, and natural gas to heat its kiln. Because the Trident facility already uses these fuels and the amount of tires to be combusted would be limited through conditions in Permit #0982-11 to only 15% of the total heat input, the potential impacts to air quality from the proposed project would be minor. In addition, permit limits and conditions would be placed in Permit #0982-11 to protect human health and the negligible risk standard.

Fugitive air emissions from onsite land disturbance for the installation of the equipment required for the project would be minor and temporary. Installation of the equipment would require the use of motor vehicles or other heavy equipment, but the impacts would be minor and of a short time duration. During operation of the equipment, waste tires would be transported to the facility by tractor-trailer or rail and stored in covered containers. The waste tires would be transported to the kiln for combustion by means of a conveyor system. The proposed tire conveyor system and associated equipment would be located inside the property boundary and vehicle traffic associated with these activities would primarily use existing paved and non-paved roads. The amount of vehicle activity in the area would not increase substantially over the existing traffic and, as a result, the potential impacts would be minor.

CO_2 emissions could potentially increase as a result of this project. The estimated CO_2 emissions from the facility are 446,250 tons per year, based on the AP-42 emission factor for a wet process kiln. However, the type of fuel combusted while establishing the AP-42 emission factors was not identified. Therefore, whether or not such an emission factor would include tire emissions is unclear. The carbon content of fuels currently used at the facility (i.e., coal) is similar to the carbon content of waste tires; therefore, the change in CO_2 emissions would be minor. Information submitted by Holcim indicates that the percent change in CO_2 emissions from combusting tires in comparison to combusting coal would be small. The percent increase in CO_2 emissions was estimated to be about 1% from the use of tires in comparison to the use of coal (1% for up to 15% of the time). The CO_2 emissions would be minor when compared to the CO_2 emissions from other industrial or natural sources in Montana. In addition, there are no ambient air quality standards for CO_2, and CO_2 is not a regulated pollutant under the Federal or Montana Clean Air Acts.

G. Unique Endangered, Fragile, or Limited Environmental Resources

In order to identify any species of special concern in the immediate area of the proposed project, the Department contacted the Montana Natural Heritage Program of the Natural Resource Information System (NRIS). The Montana Natural Heritage Program identified two species of concern within an approximately two-mile radius of the facility, including the Bird Rookery (Great Blue Heron)

and Spiranthes Diluvialis (Ute Ladie's-resses). A total of 38 Great Blue Heron nests (18 occupied) were documented in 1991 along the Gallatin River approximately 2 miles south-southeast of Trident. In 1949, a Lampropeltis Triangulum (Milk Snake) was observed approximately 5 miles from the Trident Plant, near Three Forks. In 1997, a total of 15 flowering plants of Ute Ladie's-tresses were documented south of Trident on state land in a small seepage zone above a backwater slough of the Madison River. In 1899, Castilleja Exilis (Annual Indian Paintbrush) was observed approximately 5 miles southeast of the Trident Plant near Logan. In 1959, Primula Incana (Mealy Primrose) was observed approximately 5 miles southeast of the Trident Plant near Logan. According to information provided by the United States Department of the Interior Fish and Wildlife Service, federally listed endangered, threatened, proposed, and candidate species in Gallatin County include Haliaeetus leucocephalus (Bald Eagle), Ursus arctos horribilis (Grizzly Bear), Zaitzevia thermae (Warm Spring Zaitzevian Riffle Beetle), Canus lupus (Gray Wolf), Lynx canadensis (Canada Lynx), and Thymallus arcticus (Montana Arctic Grayling).

Holcim analyzed the following species in the screening level ecological risk assessment: Grizzly Bear, Grus Americana (Whooping Crane), Numenius borealis (Eskimo Curlew), Bald Eagle, Mustela nigripes (Black-Footed Ferret), Canada Lynx, Acipenser transmontanus (White Sturgeon), Sterna Antillarum (Least Tern), Salvelinus confluentus (Bull Trout), Gray Wolf, Charadrius melodus (Piping Plover), Scaphirhynchus albus (Pallid Sturgeon), Howellia auatilis (Water Howellia), Silene spaldingii (Spalding's Catchfly), and Ute Ladie's-tresses. Holcim selected the species based upon the U.S. Fish & Wildlife Service's Threatened and Endangered Species System (TESS) list.

Based on results of the air quality modeling, the human health risk assessment, and the screening level ecological risk assessment, impacts from the proposed project on the unique, endangered, fragile, or limited environmental resources in the area would be minor. A brief overview of the air dispersion modeling and human health risk assessment analysis results were presented in Section 7.F of this EA while the ecology and water quality evaluation was provided in Sections 7.A and 7.B. Results of the analyses indicated that the impacts from the projected change in air emissions from this project would be minor.

The proposed use of waste tires as a fuel would have minor impacts on limited non-renewable resources such as coal because tires would displace up to 15% of the total fuel heat input in the Trident kiln. Consequently, less coal and other fuels would be required and transported for the facility. Overall, use of waste tires as a fuel for the kiln would likely reduce the disposal of whole tires in area landfills. In general, landfill disposal of tires is more expensive than the disposal of an equivalent weight of solid waste. Because of the cost associated with disposing of whole tires, unwanted or unused stockpiles may develop. Improper tire management from stockpiling tires may present significant risk to the public health and environment such as the potential for tire fires, visual disturbance, public expense for removal, and diseases from various rodents and insects.

Because of the physical characteristics of tires, even after closure of a landfill, whole tires may often make their way to the surface and penetrate the final cover. Although landfilling tires is a relatively safe method of disposal, after burial, it is unlikely they would be recovered economically for use as a potential resource. As a potential fuel source, tire-heating values range from approximately 12,000 to 16,000 Btu per pound compared to 11,000 to 13,000 Btu per pound for bituminous coal. Although there is not an exact known number of waste tires generated on an annual basis in Montana, according to the EPA, approximately 1 tire per person per year is generated in the United States. In 2000, Montana's Census data indicated a total population of 902,195. The Trident plant would use approximately 657,000 tires per year, but would be allowed by permit to use up to 1,137,539 tires per year. Holcim has expressed interest in using an in-state contractor to supply the waste tires for the plant. In order to maintain a consistent feedstock for the plant, the contractor would obtain the tires from Montana and/or neighboring states, if necessary.

H. Demands on Environmental Resource of Water, Air, and Energy

Potential impacts to local water resources would be minor, if any, because the proposed use of waste tires as a supplemental fuel for the kiln would not require additional demands on water resources. This project would entail some limited modifications to install equipment to handle tires and the addition of a gate in the mid-section of the kiln, but it would not change demands on local surface water or groundwater. In addition, as described in Section 7.F of this EA, the potential impact on the air resources in the area of the facility would be minor because, with the exception of CO, the projected change in air emissions from the project would be relatively small. Criteria pollutant air modeling for CO, VOC, PM_{10}, NO_x, SO_2, and Pb demonstrated that the emissions from the facility as a result of the proposed project would not exceed ambient air quality standards. Furthermore, HAP emissions associated with the project were evaluated in a human health risk assessment. According to the risk assessment, this project would meet Montana's negligible risk standard. As a result of the air quality analysis completed for the project, Permit #0982-11 would contain conditions and limitations to protect the air resources by minimizing air impacts.

A minor conservation of energy resources would be realized from the proposed project because waste tires would be used (for up to 15% of the total fuel heat input) as a supplemental fuel for the kiln; landfill space would be conserved; and illegal disposal of tires could be reduced in Montana. In 1996, according to the Scrap Tire Management Council, approximately 152 million tires were incinerated as supplementary fuel at 107 facilities across the United States, including 35 cement kilns, 23 pulp and paper facilities, 15 electric utilities, and 34 other industrial and electric generation facilities. In the United States, more than 270 million waste tires are generated annually. As indicated by the Scrap Tire Management Council, there were nearly 549 to 800 million scrap tires stockpiled in the United States in 1996. Montana may generate approximately 670,000 to 900,000 tires per year. Additionally, approximately 500,000 tires have been stockpiled from illegal dumping, lack of disposal alternatives, or economically unviable recycling projects. As indicated by Holcim, the Trident plant would combust up to 1,137,539 waste tires per year in the kiln, based on continuous plant operation. In order to maintain a consistent supply of waste tires for the facility, Holcim would likely rely on a contractor to gather and deliver the tires from Montana and/or neighboring states, as necessary, for use. Besides tire-derived fuel, other waste tire management alternatives potentially available include activities such as tire re-treading, volume reduction, various civil engineering applications, and rubberized asphalt. However, capital costs, demand, and marketability associated with the potential alternatives would affect the use of these alternatives. None of the tire management alternatives are currently being conducted commercially in Montana.

I. Historical and Archaeological Sites

Potential impacts on historical and archaeological sites from this project would be minor, if any, because it would take place at the Holcim facility within a previously disturbed, active industrial site. In addition, further land surface disturbance would be limited. Installation of the equipment for the project would require the use of motor vehicles or other heavy equipment, but the impacts would be very minor and of short duration. Once the applicable equipment was installed, the waste tires would be transported to the kiln from the covered storage using a conveyor system.

The Department contacted the Montana Historical Society - State Historic Preservation Office (SHPO) in an effort to identify any historical, archaeological, or paleontological sites or findings near the proposed project. SHPO's records indicate that there are currently no previously recorded historic or archeological sites within the project site. Because the project would occur at a previously disturbed site, the likelihood of finding undiscovered or unrecorded historical properties would be low. However, if cultural materials were encountered during the course of the project, SHPO requested that they be contacted and the site investigated. Neither the Department nor SHPO has the authority to require a cultural resource inventory for this project.

The Missouri River Headwaters State Park is located approximately ½ - 1 mile south of the Holcim facility. The Holcim project would result in increased traffic on the road to the Missouri River Headwaters State Park. However, the impacts to the Missouri River Headwaters State Park from the increased traffic would be minor. In addition, the air emissions from the proposed project would result in minor impacts to the Missouri River Headwaters State Park. Based on the air modeling analyses conducted for this project, the proposed project would comply with the applicable air quality rules and standards; therefore, the project would have, at most, minor impacts on the Missouri River Headwaters State Park.

J. Cumulative and Secondary Impacts

The cumulative and secondary impacts from this project on the physical and biological aspects of the human environment would be minor. Air quality modeling of the criteria pollutants for the proposed project indicates that the emissions (and corresponding impacts) from Holcim will comply with the ambient air quality standards. An hourly NO_x emission limit was established to ensure modeled compliance with the hourly MAAQS for NO_x.

The human health risk assessment also indicated that the impacts from this project would be minor. The human health risk assessment included an evaluation of the potential cancer risks and noncancer hazards from potential exposure to pollutants of concern from this project, specifically HAPs. Results of the human health risk assessment demonstrated that the proposed project would not result in an excess lifetime cancer risk or non-cancer hazard that exceeds Montana's negligible risk standard for any individual chemical of concern, or for the aggregate of the pollutants of concern. Similarly, the screening level ecological risk assessment indicated that exposure would be unlikely to pose an unacceptable hazard to ecological receptors in the vicinity of the Trident Plant.

The physical disturbance to the site from tire storage, tire conveyors, and the new kiln gate would by minor. Montana Air Quality Permit #0982-11 would require that the tires to be used for fuel be stored in covered storage. Such a requirement would minimize rodent and insect infestation. Also, because the waste tires would be used as a supplemental fuel for the kiln, landfill space would be conserved and illegal disposal of tires would likely be reduced in Montana.

The overall impacts to the physical and biological aspects of the human environment from this project would be minor.

8. **The following table summarizes the potential economic and social effects of the proposed project on the human environment.** The "no-action" alternative was discussed previously.

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Social Structures and Mores				√		Yes
B	Cultural Uniqueness and Diversity				√		Yes
C	Local and State Tax Base and Tax Revenue			√			Yes
D	Agricultural or Industrial Production			√			Yes
E	Human Health			√			Yes
F	Access to and Quality of Recreational and Wilderness Activities			√			Yes
G	Quantity and Distribution of Employment			√			Yes
H	Distribution of Population				√		Yes
I	Demands for Government Services			√			Yes
J	Industrial and Commercial Activity			√			Yes
K	Locally Adopted Environmental Plans and Goals				√		Yes
L	Cumulative and Secondary Impacts			√			Yes

SUMMARY OF COMMENTS ON POTENTIAL ECONOMIC AND SOCIAL EFFECTS: The following comments have been prepared by the Department.

A. **Social Structures and Mores**

The proposed use of waste tires as a supplemental fuel at the Holcim cement manufacturing plant would not cause a disruption to any native or traditional lifestyles or communities (i.e., social structures or mores) in the area because the project would occur at a previously disturbed industrial site. The Trident plant is located near the Missouri Headwaters approximately 5 miles northeast of Three Forks and approximately 30 miles west of Bozeman. Modifications to the Trident facility as a result of the project would be relatively minimal and would not be out of place compared to other onsite activities or structures. Some additional traffic in the area would occur but it would be minimal in relation to the overall day-to-day traffic in the area. Tires would be stored on-site in covered storage to minimize visual disruption, fire potential, rodent infestation, and insect infestation. Land in the adjacent area would continue to be used for farming, ranching, livestock grazing, rangeland, and recreation. Recreational opportunities would continue to be available along the Missouri River and at the Headwaters State Park area.

B. **Cultural Uniqueness and Diversity**

Cultural uniqueness and diversity of the area around the proposed project would not change because the project would occur at a previously disturbed industrial location. The area in the vicinity of the plant is currently used for various activities including farming, ranching, and recreation. With the implementation of the proposed project, the Trident plant would continue to manufacture cement, and the surrounding area would continue to be used for farming, ranching, and recreational purposes. Overall, the project would have no impact on cultural uniqueness and diversity because it would be completed on previously disturbed industrial land and the surrounding area land use would not change as a result of the project.

C. **Local and State Tax Base and Tax Revenue**

This project would have a minor effect on the local and state tax base and tax revenue because, other than some specialized personnel during the installation of the kiln gate, conveyor system, and other ancillary equipment necessary for the proposed project, Holcim would not likely employ additional permanent personnel at the plant as a result of the project. Additional peripheral jobs may be created from the transfer and storage of the waste tires. Revenue generated from the landfills that currently accept waste tires would be reduced, but the overall impact to the local and state tax base and tax revenue would be minor.

D. **Agricultural or Industrial Production**

Minor impacts, if any, on local agricultural production would result from this project because the proposed use of waste tires (as a supplemental fuel for the kiln) would be conducted within a previously disturbed mining/industrial cement manufacturing facility; land use in the local area would continue to be used for farming, ranching, and livestock grazing; and the corresponding impacts from the air emissions would be minor. Waste tires would be stored on-site in covered storage to minimize fire potential and rodent and insect infestation. Site-specific air dispersion modeling, as described in Section 7.F of the EA, also demonstrated that air emissions from the use of waste tires as a fuel would not cause an exceedance of the NAAQS or MAAQS for the criteria pollutants. In addition, the modeling for the projected change in constituents of HAP emissions from the use of tires demonstrated that the proposed project would not be expected to result in an excess lifetime cancer risk or noncancer hazard that exceeds Montana's negligible risk standard for any individual chemical of concern, or for the aggregate of the pollutants of concern (which included the potential human health risk associated with the consumption of local agricultural produce). The screening level ecological risk assessment indicated that exposure from the air emissions associated with the proposed project on local vegetation would be minor. The representative native plant species selected in the area was the juniper plant. The potential hazard for the juniper plant was evaluated by comparing the modeled average soil concentration to soil phytotoxicity benchmarks. The hazard index for the juniper plant was below one (1.35E-01), which indicates that the adverse impacts would be minor.

The potential impact to organic farms in the vicinity of the Trident Plant was evaluated based on the availability of both federal and/or Montana organic farming standards for chemicals in soil and water. Doug Crabtree of the Montana Department of Agriculture indicated that Montana plans to adopt the federal organic farming program for certifying and supervising organic farms and farm products but has not developed organic farming standards. Keith Jones, Director of Program Development, NOP, USDA indicated that neither the NOP nor the USDA have developed organic farming standards for metals or organics in soil or water. The level that constitutes unavoidable residual environmental contamination in the new federal organic farming standards (Section 205.671) is 5% of the EPA tolerance level or the FDA action level; however, the EPA and FDA levels apply to pesticides, not the COPC evaluated in the human health risk assessment. However, based on the overall conservative approach of the risk assessment and screening level risk assessment and the local dispersion characteristics, the impacts would be very minor, if any.

Additional traffic in the area near the facility would likely occur but it would be very minimal in relation to the overall day-to-day traffic in the area. According to the Montana Department of Transportation (MDT), the annual average daily traffic on State Secondary 205 between Interstate 90 and State Secondary Route 286 in the year 2000 was 1,140 vehicles per day and 675 vehicles per day from State Secondary Route 286 to the Holcim Plant. The estimated increase in traffic between the East Three Forks Interchange and the Holcim Plant necessary to bring in tires would be about 1,300 additional trucks per year. This equates to approximately 3.6 trucks per day or a 0.5% increase in traffic (if tires are delivered by truck). Tires could potentially be delivered by train instead or in addition to delivery by truck. Because the facility would be supplementing (not

adding to) the current fuel requirements for the kiln (up to 15% on a Btu basis) and the facility would be limited to the conditions contained in Permit #0982-11, increased industrial production would not occur at the Trident Plant from the current project.

E. **Human Health**

As described in Section 7.F of this EA, the impacts from the proposed project on human health would be minor because the change in emissions would be small and the resulting impacts would be minor. Modeled impacts, taking into account air dispersion characteristics (i.e., wind speed, wind direction, atmospheric stability, stack height, stack temperature) were low and were below the MAAQS and NAAQS. Furthermore, the air quality permit for this facility would establish conditions to minimize emissions and allow the facility to be operated in compliance with all applicable air quality rules. These rules are designed to protect human health. Besides the criteria pollutants, the impacts from other air pollutants of concern for the proposed project were addressed in the human health risk assessment. The human health risk assessment demonstrated that the proposed project would not be expected to result in a change in excess lifetime cancer risk or noncancer hazard that exceeds Montana's negligible risk standard for any individual COPC, or for the aggregate of the pollutants of concern.

F. **Access to and Quality of Recreational and Wilderness Activities**

As a result of the upcoming bicentennial celebration of the Lewis and Clark expedition, more recreational visitors would be expected to the Missouri River, its tributaries, and to the Missouri Headwaters State Park. However, this project would not likely alter any existing access to or quality of any recreational or wilderness area. This project would have minimal, if any, impact on recreational or wilderness activities because the project activities would take place within the existing facility's boundaries.

On-site land disturbance would be very minor and temporary from the installation/modification of the kiln and other equipment at the plant. Installation/modification to the facility would require the use of motor vehicles or other heavy equipment, but the impacts would be minor and of short duration. Once the modifications were complete, waste tires would be transported to the facility by truck or rail and stored in covered storage. Eventually, the waste tires would be transported by means of a conveyor system to the kiln for combustion. The tire conveyor system and associated equipment would be located inside the property boundary and vehicle traffic associated with these activities would primarily use existing paved and non-paved roads. The Department does not believe that the amount of vehicle activity in the area would increase substantially over the existing traffic and, as a result, the potential impacts would be minor.

In addition, air dispersion modeling, as described in Section 7.F of the EA, demonstrated that air emissions from the facility would not cause an exceedance of the Primary or Secondary NAAQS or MAAQS, including at recreational areas such as the Missouri River Headwaters State Park or the Missouri River. Also, the projected changes in potential hazardous air emissions from the project were evaluated in a human health risk assessment. The purpose of the human health risk assessment was to scientifically evaluate the potential carcinogenic and non-carcinogenic hazards that would be attributed to the proposed project. Results of the risk assessment revealed compliance with Montana's negligible risk standard, as described in Section 7.F of the EA.

Any impacts on recreational and wilderness activities in the area would be minor.

G. **Quantity and Distribution of Employment**

The proposed use of waste tires as a supplemental fuel (up to 15% of the fuel input) for Holcim's operations would result in very minor impacts to the quantity and distribution of employment at the facility because no additional permanent employees would be expected to be hired at the facility as

a result of this project. Other than some specialized personnel during the design and installation of the kiln gate, conveyor system, and other ancillary equipment necessary for the proposed project, the project would not require additional permanent plant personnel. A few temporary employment opportunities may result from various other portions of the project. Additional peripheral employment opportunities may be created and/or redistributed for the transfer and storage of the waste tires, but the overall impacts to quantity and distribution of employment would be minor.

H. **Distribution of Population**

This project would not involve any significant physical or operational change to the facility that would impact the location, distribution, density, or growth rate of the human population in the area because, excluding the temporary positions that would result from the design and installation of the kiln gate, conveyor system, and other ancillary equipment, the employment opportunities created from this project would be very minimal, if any. The temporary/contract positions would not affect the distribution of population in the area. Most employees required for the design and installation of the required equipment would likely temporarily locate within the area, as needed. For the other miscellaneous related activities, the employees would likely be from the general area.

I. **Demands of Government Services**

Demands on government services from this proposed project would be minor because the facility currently maintains a Montana Air Quality Permit and an operating air quality permit from the Department and the need for new or altered governmental services relating to the alteration of the current air quality permit would be minor. In addition, the site would require inspections and an annual review for license renewal by Solid Waste Program personnel. The Gallatin County Health Officer would also have to approve the issuance of the solid waste facility license. Overall, the permit requirements and compliance verification requirements for the permit would require relatively minor services from the government. Minor increases would be observed in local vehicle traffic on existing roads from the transportation of waste tires to the Holcim plant. According to the MDT, the annual average daily traffic on State Secondary 206 between Interstate 90 and State Secondary Route 286 in the year 2000 was approximately 1,140 vehicles per day and 675 vehicles per day from State Secondary Route 286 to the Holcim Plant. The estimated increase in traffic between the East Three Forks Interchange and the Holcim Plant would be about 1,300 additional trucks per year or, on average, about two trucks per day on the existing roadways. Therefore, there would not be any significant damage to the existing road by the additional loads caused by the proposed project.

J. **Industrial and Commercial Activity**

The proposed project to supplement up to 15% of the total heat input for the kiln with waste tires would represent only a minor increase in industrial and commercial activity in the area. The project would consist of the design and installation of a gate in the mid-section of the kiln that would allow the insertion of waste tires into the kiln for use as a fuel. Other ancillary activities required for the project would include the construction and installation of a conveyer system to deliver the tires to the kiln gate system for combustion. Tires would be stored onsite in covered storage to minimize potential fire and rodent and insect infestation. The actual kiln modification would require additional equipment and specialized personnel, but the impact to industrial and commercial activity would be temporary and minor.

K. **Locally Adopted Environmental Plans and Goals**

The Department is unaware of any locally adopted environmental plans and goals that would be affected by the facility or the other portions of the project as identified at the beginning of this EA. The state standards would be protective of the area surrounding the Holcim facility.

L. **Cumulative and Secondary Impacts**

The cumulative and secondary impacts from this project on the social and economic aspects of the human environment would be minor because the proposed project would reduce a portion of other non-renewable fuels used at the Trident plant for the kiln and allow Holcim to be competitive in the cement manufacturing marketplace. The project would also provide temporary employment opportunities and increase traffic in the area near the facility only a minimal amount. To minimize potential fire impacts, rodent infestation, and insect infestation, tires would be required to be stored on site in covered storage.

Because the Missouri River Headwaters State Park is located near the Holcim facility, seasonal traffic volume variations would be expected in the area due to park visitors. Other projects proposed by MDT in the area include the reconstruction project for the East Three Forks Interchange to improve traffic safety and another project to rebuild the bridge on State Secondary Route 205 over the Madison River.

The overall impacts to the social and economic aspects of the human environment would be minor.

Recommendation: An environmental impact statement (EIS) is not required.

If an EIS is not required, explain why the EA is an appropriate level of analysis:

The current permitting action would be for the mid-kiln combustion of whole waste tires to supplement up to 15% of the required fuel for the kiln on a Btu basis. An in depth EA was completed for the proposed project. Based on the information required for the project, the impacts resulting from this project would not be significant. The duration of the construction portion of the project would be short and Permit #0982-11 would establish conditions that would allow the facility to operate in compliance with all applicable air quality rules. In addition, the impact to the human environment from licensing the site as a tire resource recovery facility would be minor, so an EA is the appropriate level of analysis. For the solid waste license, the Department is requesting input from the public regarding this proposed project. In the absence of adverse public comment identifying environmental problems or significant impacts that have not been addressed in the EA, the Department intends to issue a solid waste disposal system Class III Resource Recovery Facility license for the site.

Other groups or agencies contacted or which may have overlapping jurisdiction: Montana Department of Environmental Quality - Permitting and Compliance Division/Solid Waste Licensing Program.

Individuals or groups contributing to this EA: The Montana Department of Environmental Quality (Air and Waste Management Bureau, Water Protection Bureau, Community Services Bureau); the Montana Natural Heritage Program; the Montana Department of Fish, Wildlife, and Parks; the Gallatin County Health Officer; the Gallatin County Health Department; and the State Historical Preservation Office.

EA prepared by: Mark E. Peterson
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